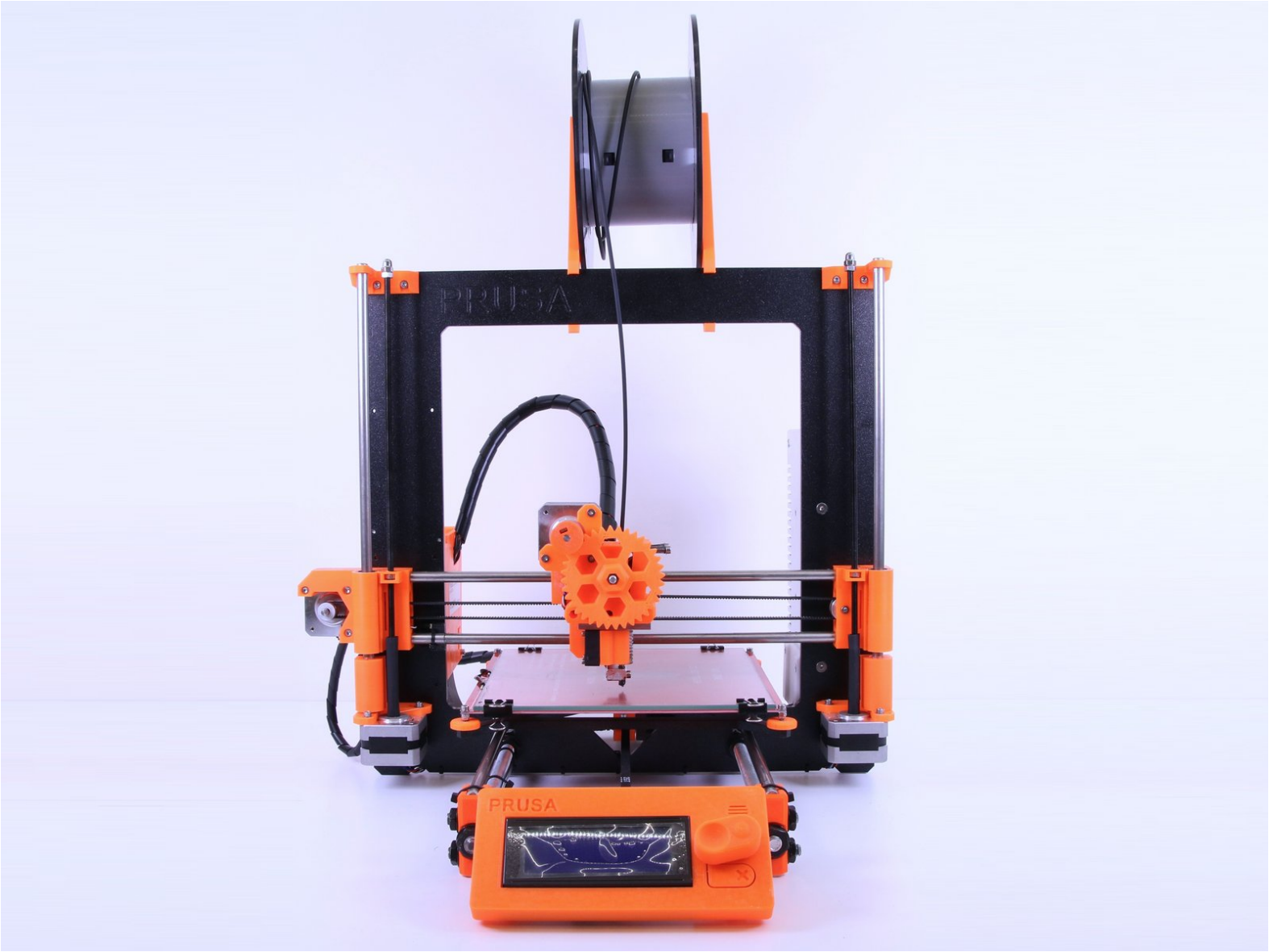
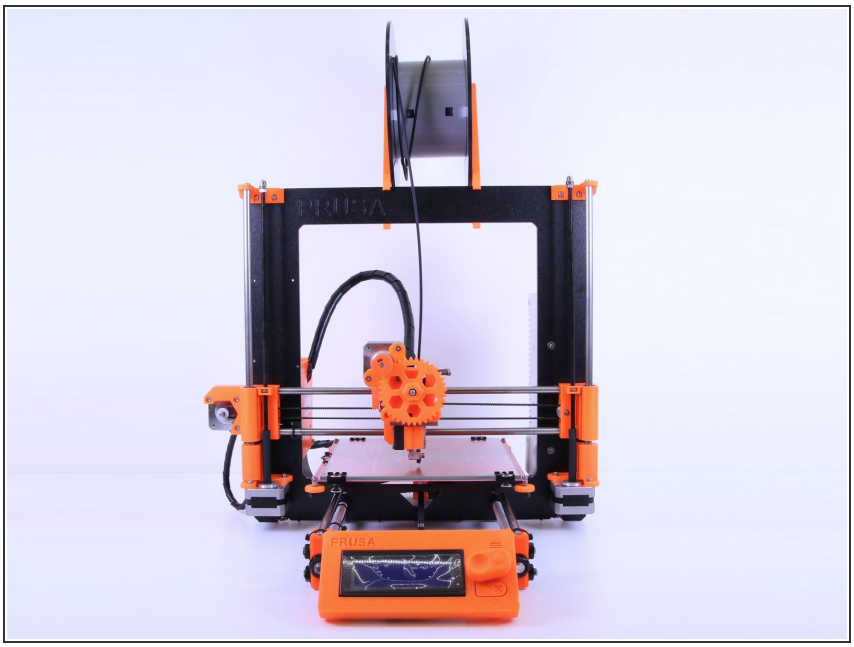
1. Removing old extruder

Written By: Josef Prusa

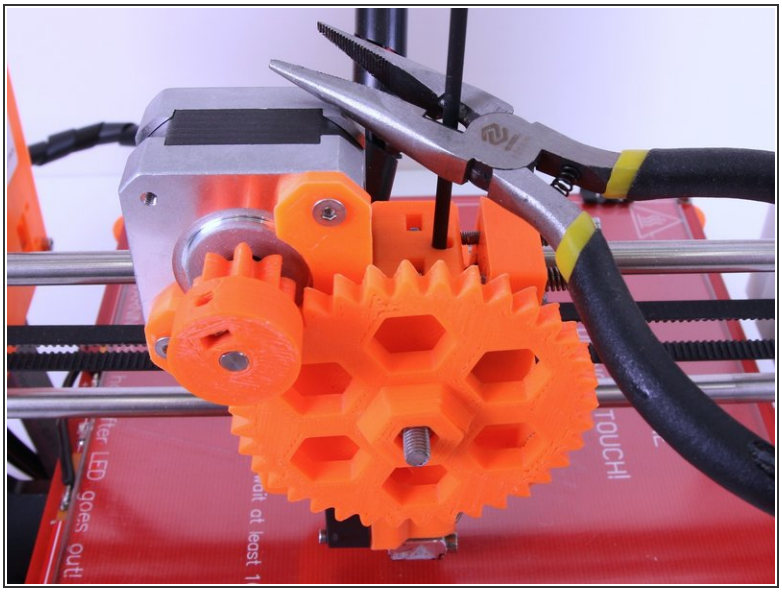


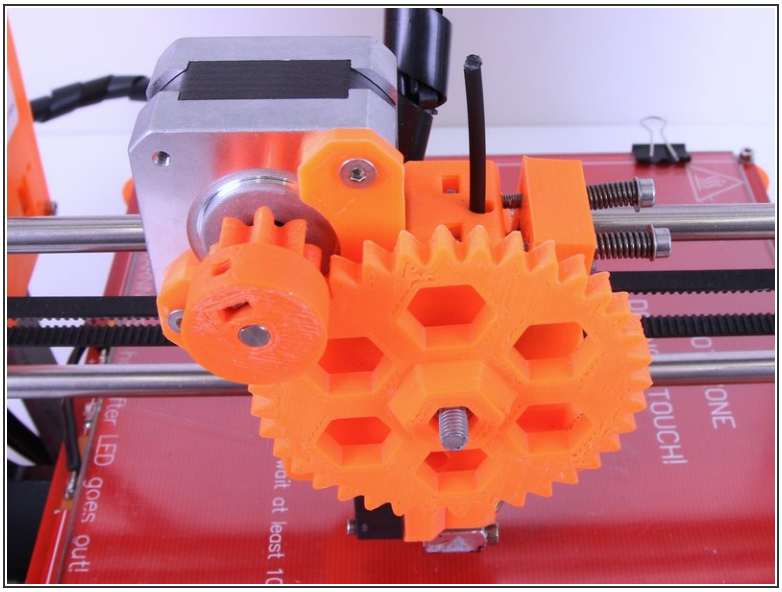
Step 1 — Preparing old printer



- Place old printer on the table
- Disconnect everything
- Make sure that printer is cold

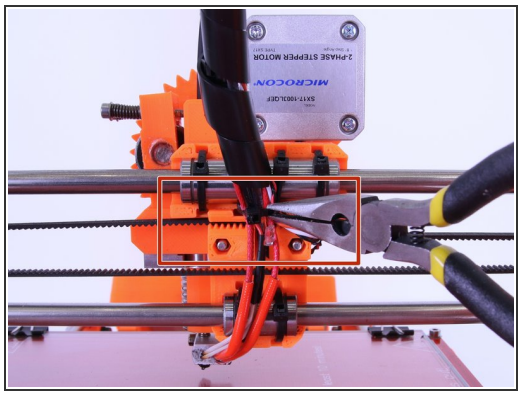
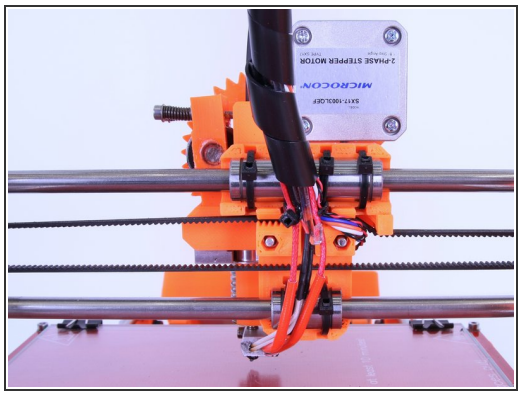
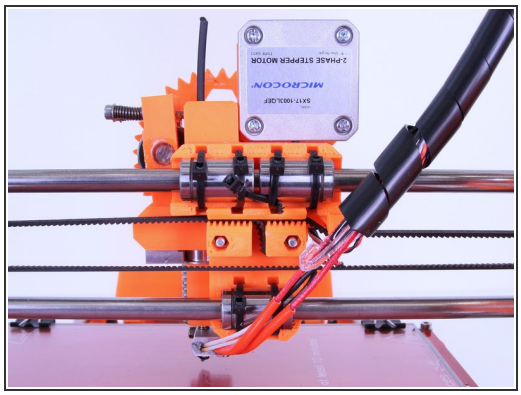
Step 2 — Cutting the filament





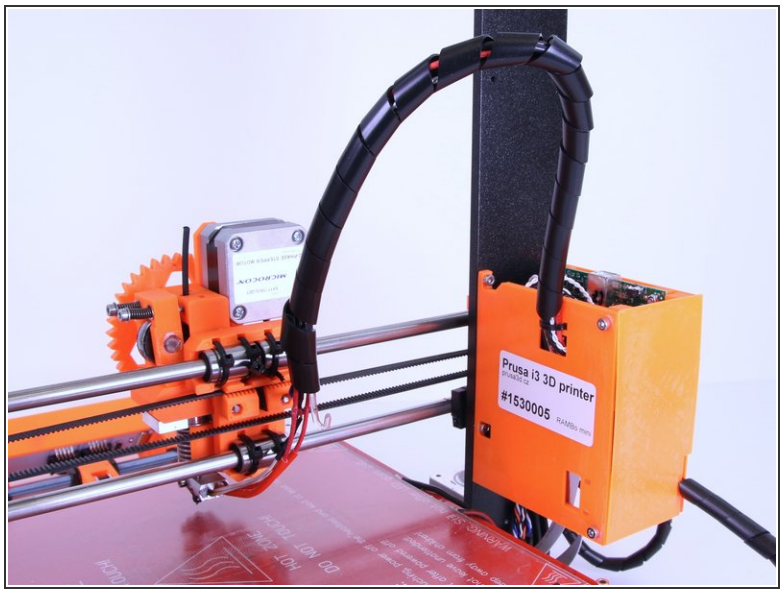
- Using pliers cut the filament as shown on picture

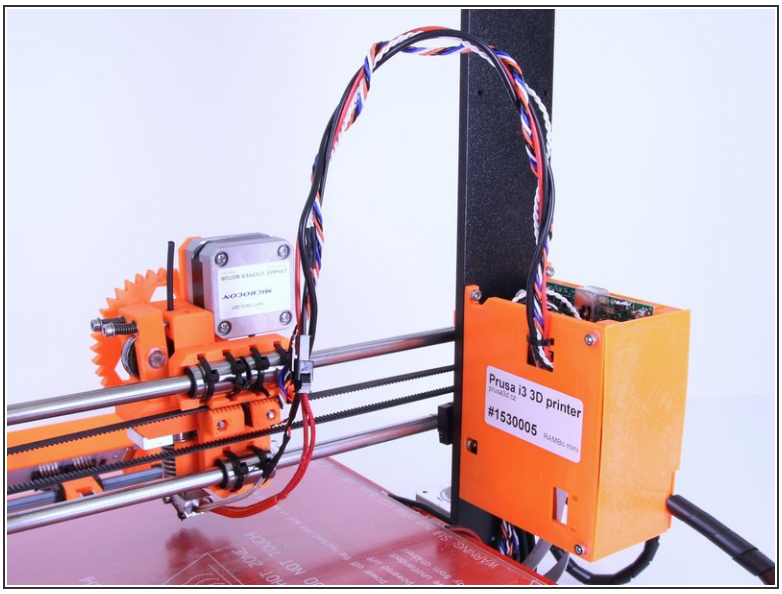
Step 3 — Loosing the cables

- Using pliers cut the ziptie and loose the cables

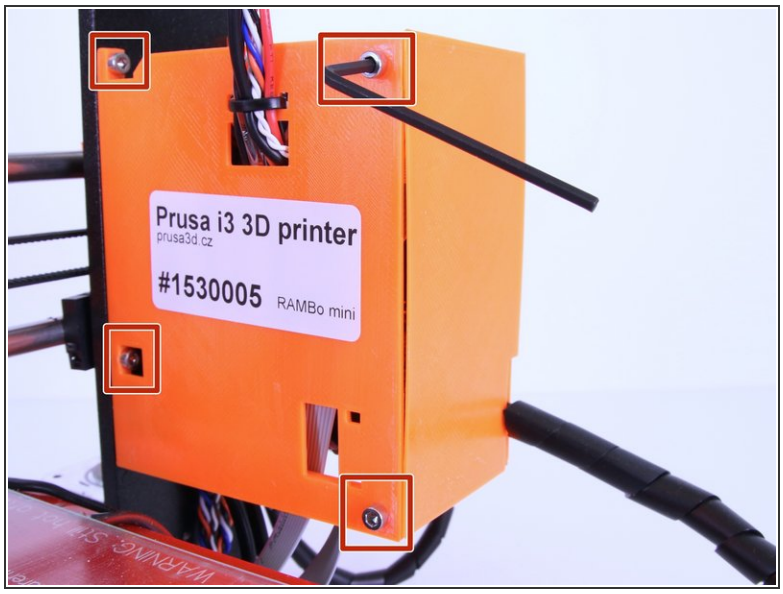
Step 4 — Unwraping cables

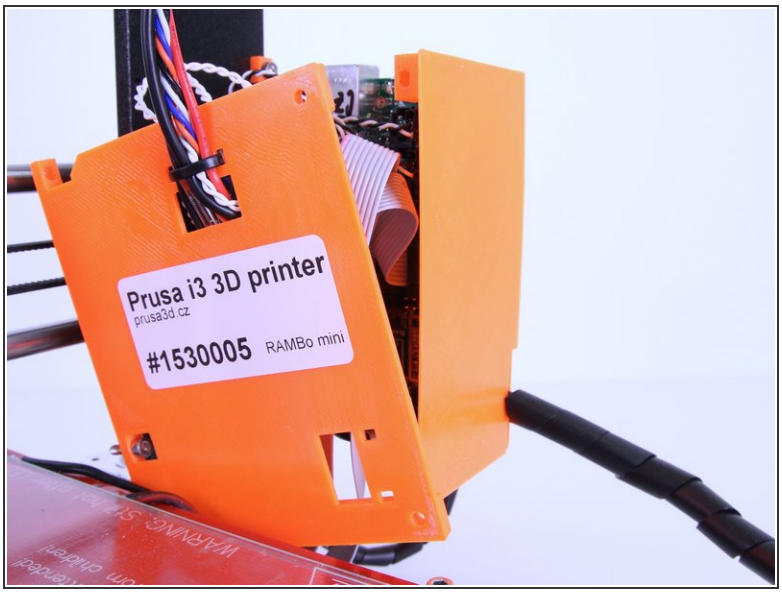




- Remove spiral wrap from the extruder cables

Step 5 — Opening the electronics

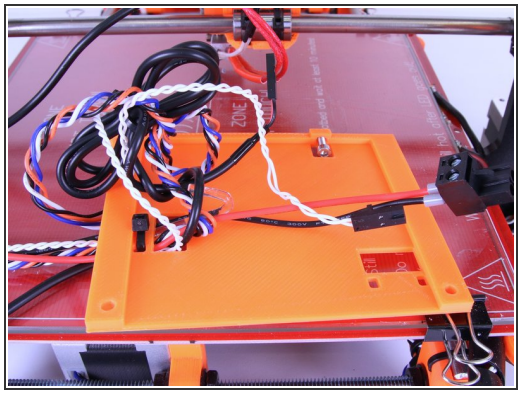


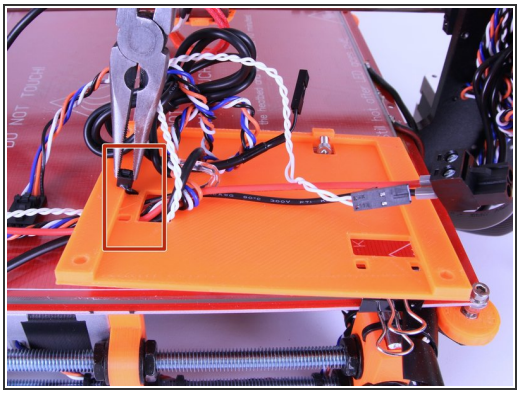


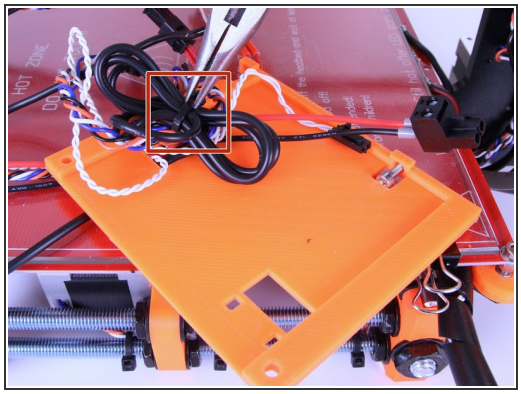
- Using 2.5mm hex spanner unscrew the right cover of electronics

ⓘ If you've bought fully assembled printer, your electronics box will look as on the picture, if you've bought kit, you'll have cables from heatbed going through the bottom hole of cover

Step 6 — Removing extruder wiring

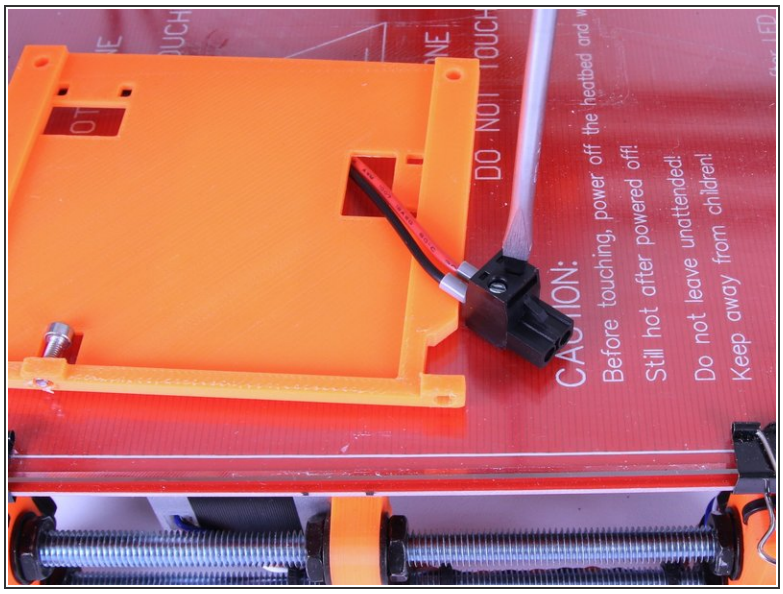


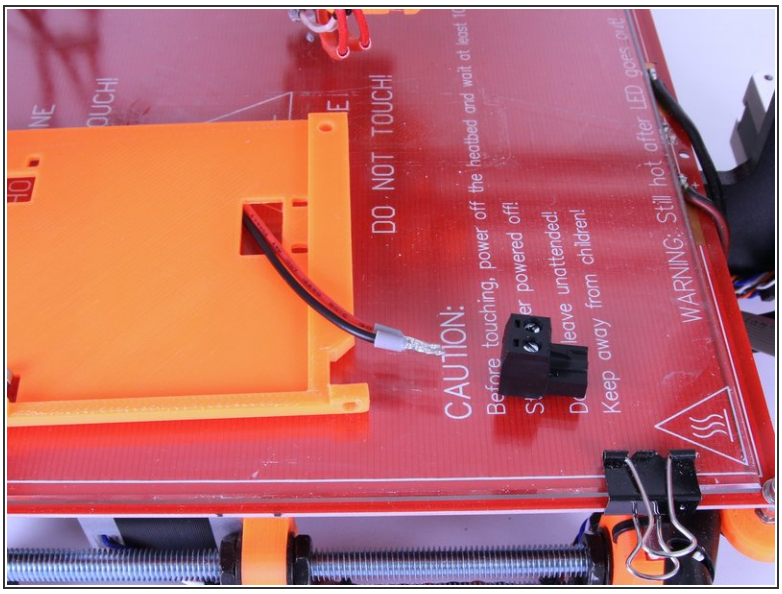




- Disconnect all cables coming from extruder
- Using pliers remove zipties

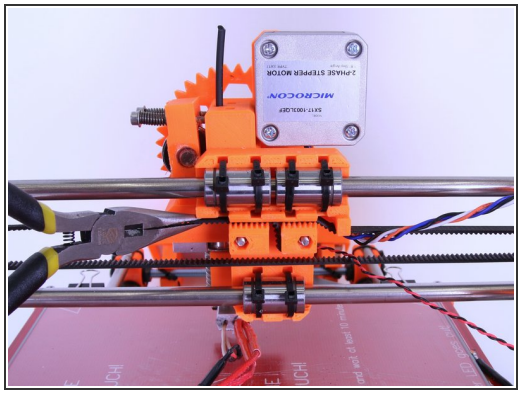
Step 7 — Removing connector

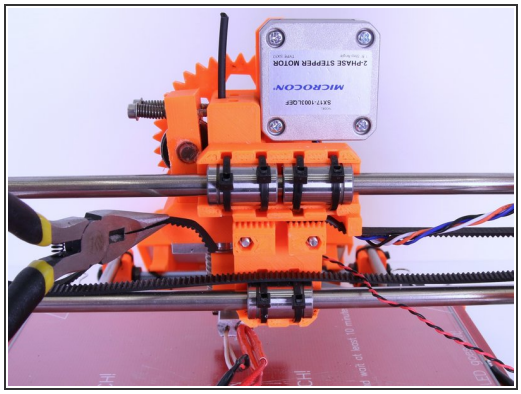


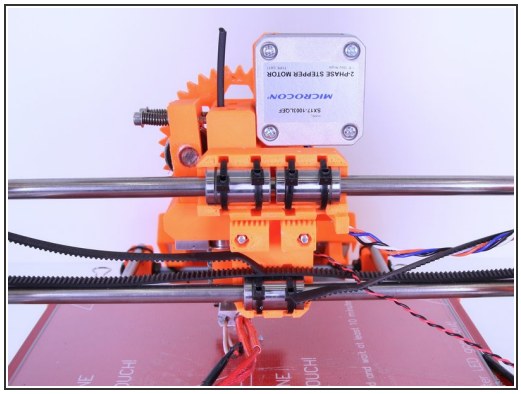


- Using flathead screwdriver remove the connector from extruder heater

Step 8 — Removing belt

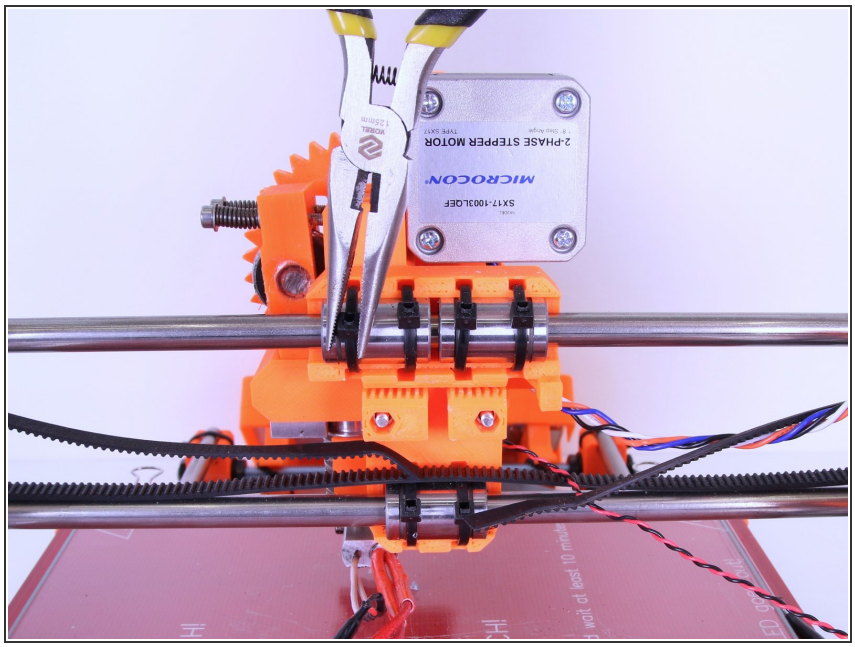






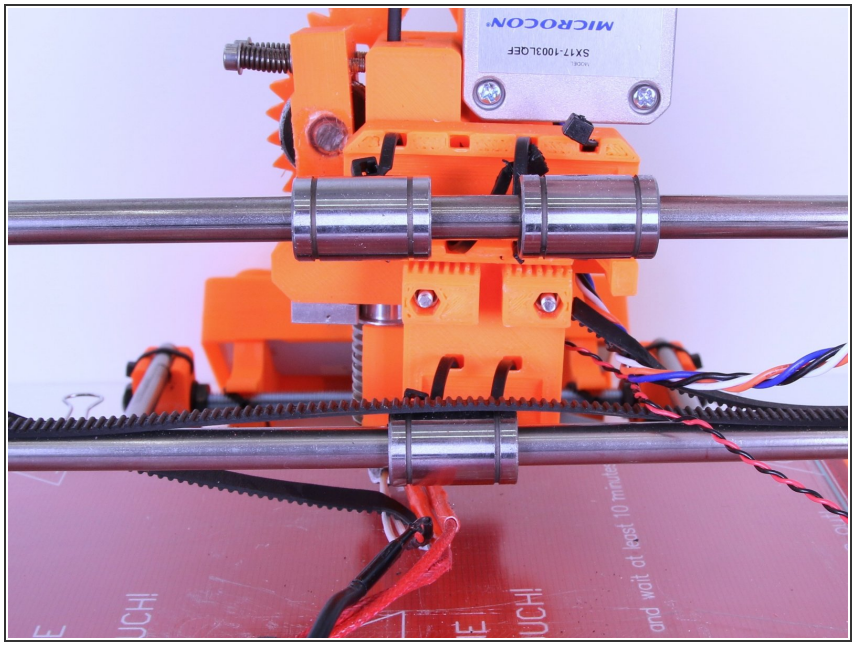
- Using pliers remove the belt from x-carriage

Step 9 — Removing carriage zipties



- Using pliers remove zipties which hold X-carriage in place

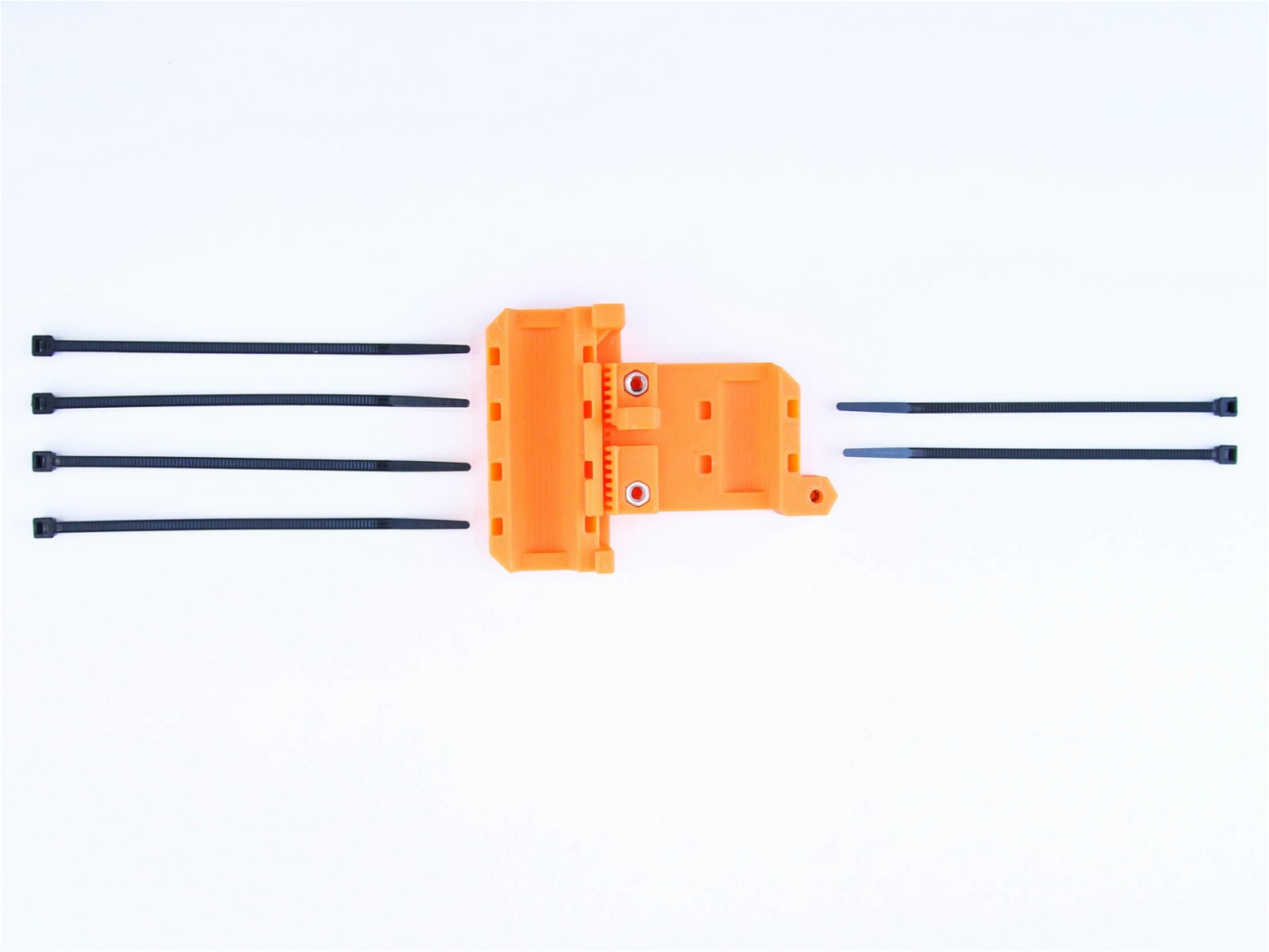
Step 10 — Removing X-carriage



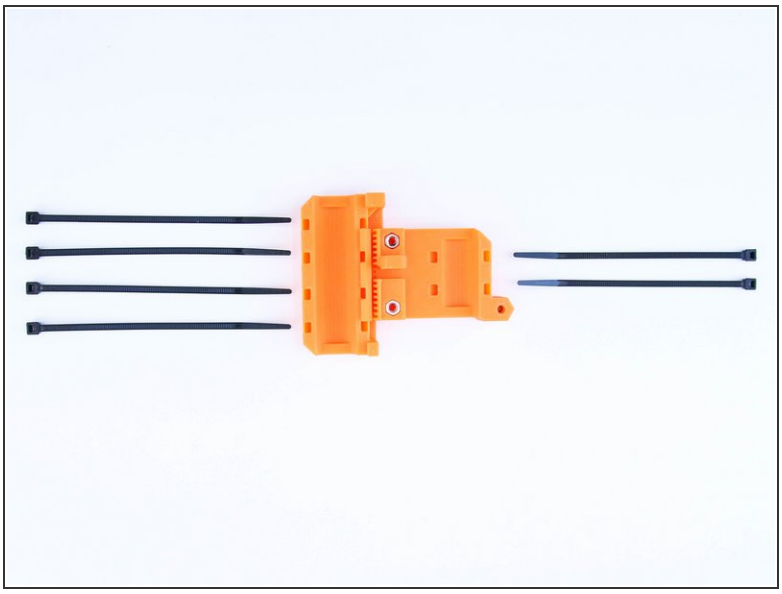
- Remove x-carriage with extruder
- You can continue by mounting next x-carriage by clicking on following link
- [2. Mounting new carriage]

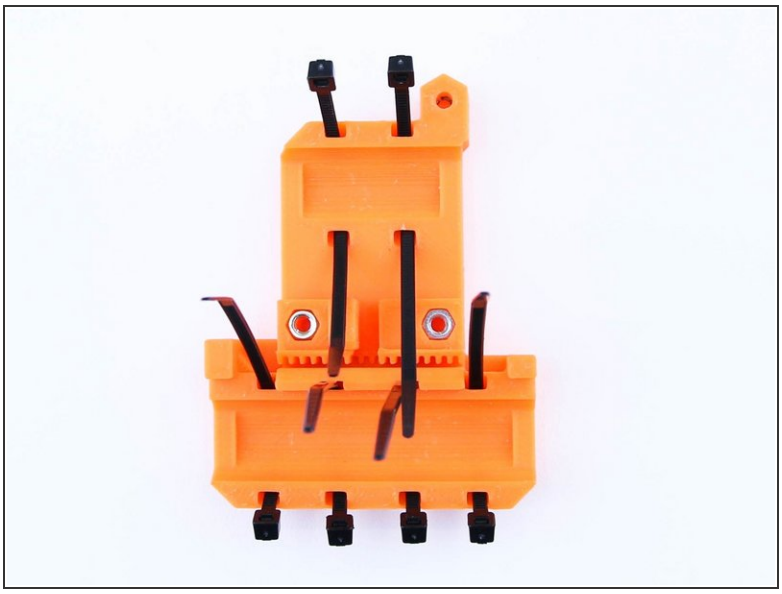
2. Mounting new carriage

Written By: Josef Prusa



Step 1 — Preparing X-carriage

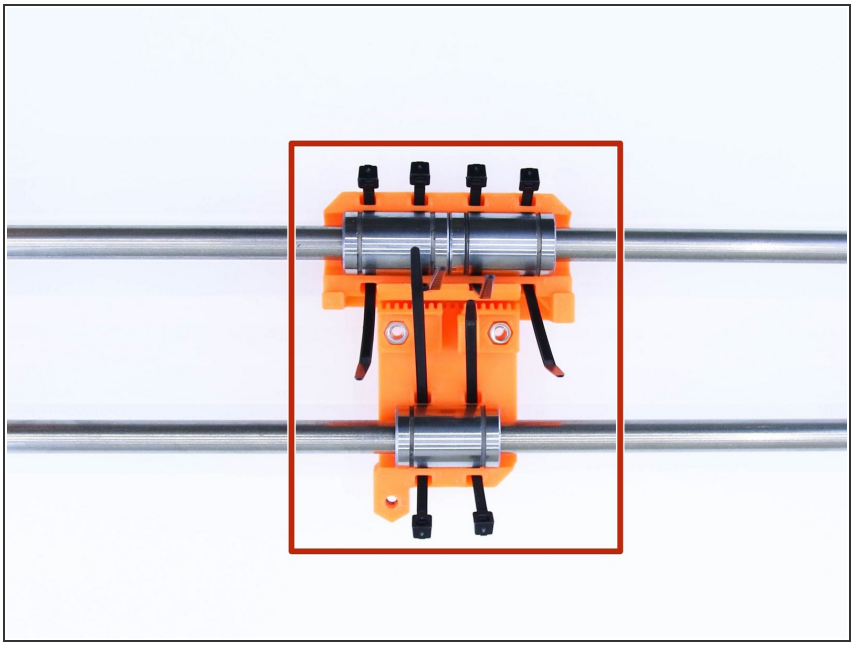




- Insert zip ties into the X-carriage as shown in the picture

Ensure the correct orientation of zipties (head of ziptie should face outside of the carriage)

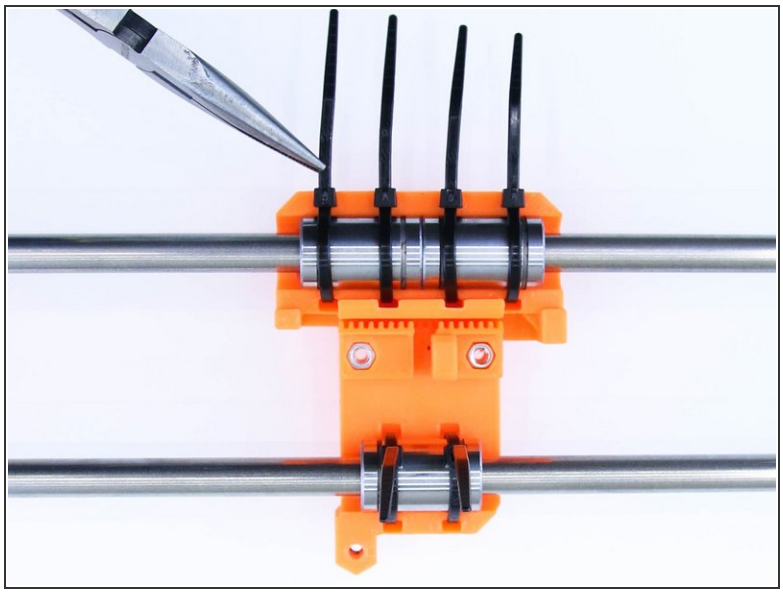
Step 2 — Placing the X-carriage

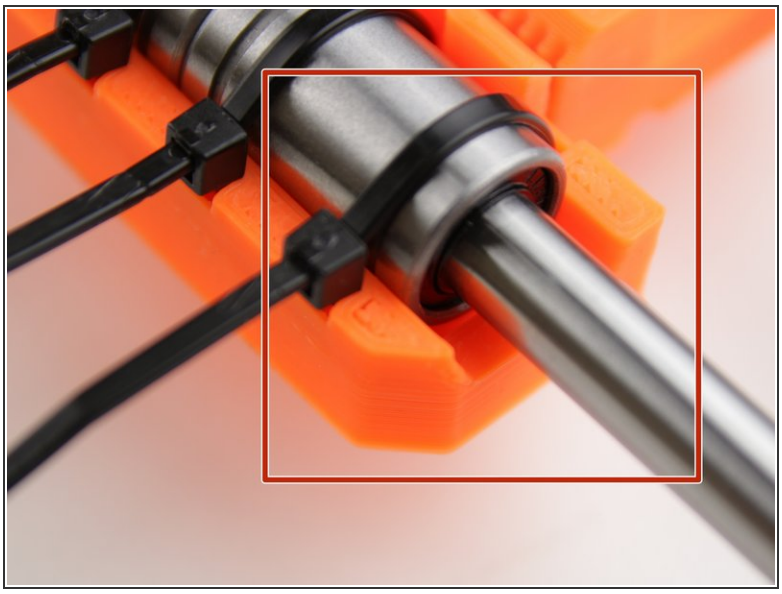


- Place X-carriage on the X-axis base as shown in the picture

Ensure the correct orientation of x-carriage (Flat side should face towards LCD)

Step 3 — Tighten the X-carriage

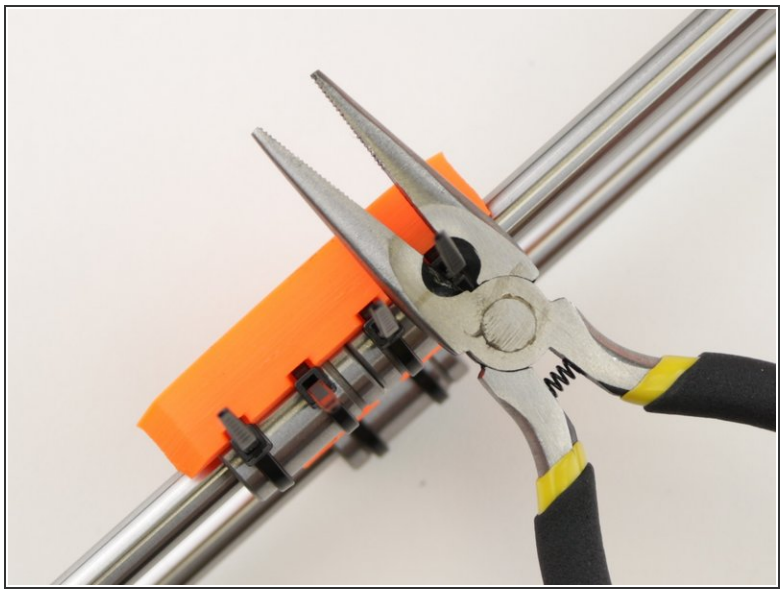


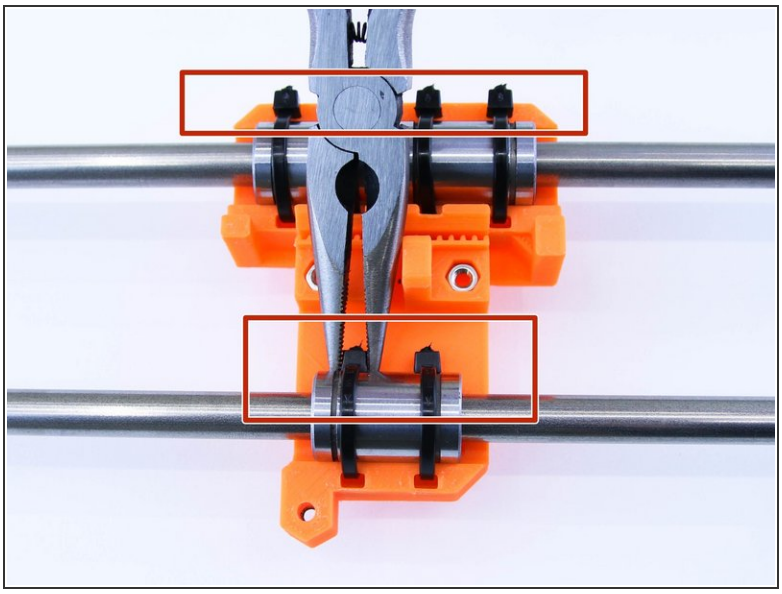


- Use pliers to tighten the zipties

⚠ Make sure that bearings are in the position as shown in the picture (bearing should be as deep in carriage as possible)

Step 4 — Cleaning up

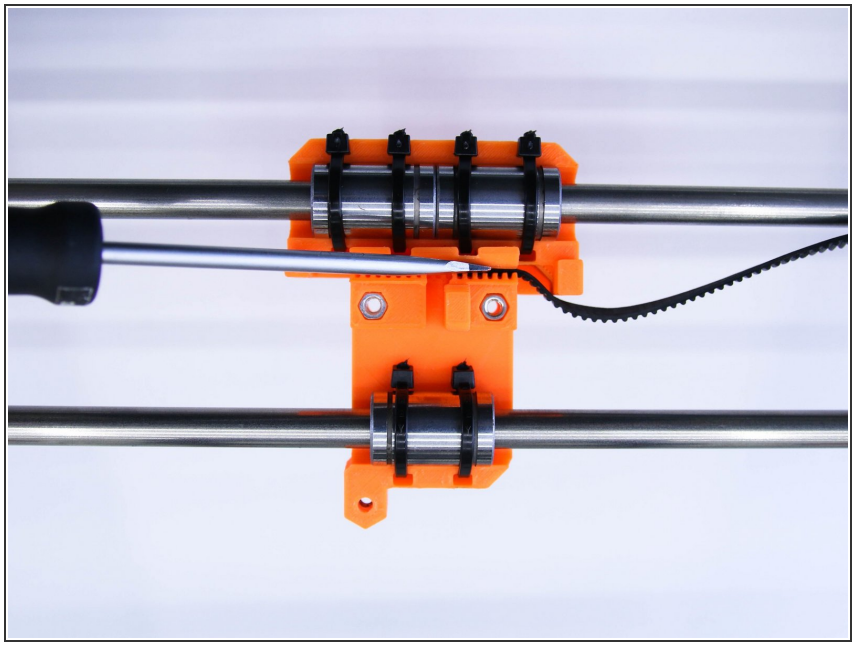




- Use pliers to cut off excess ziptie

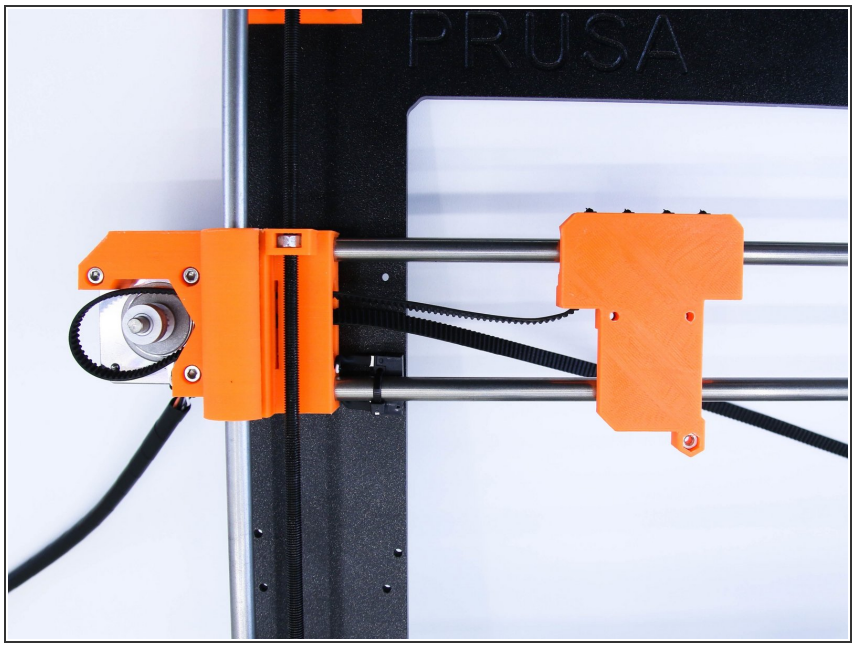
⚠ Move the ziptie head to the position as shown in picture

Step 5 — Assembling the X-axis belt



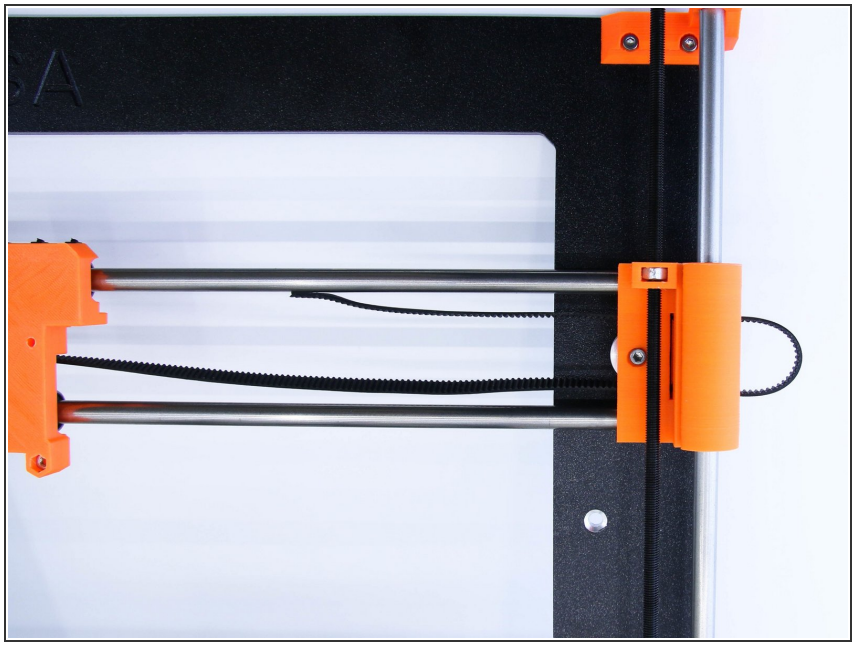
- Using flathead screwdriver, insert the X-GT2 belt (longer one) all the way down into the X-carriage

Step 6 — X-axis belt motor guide



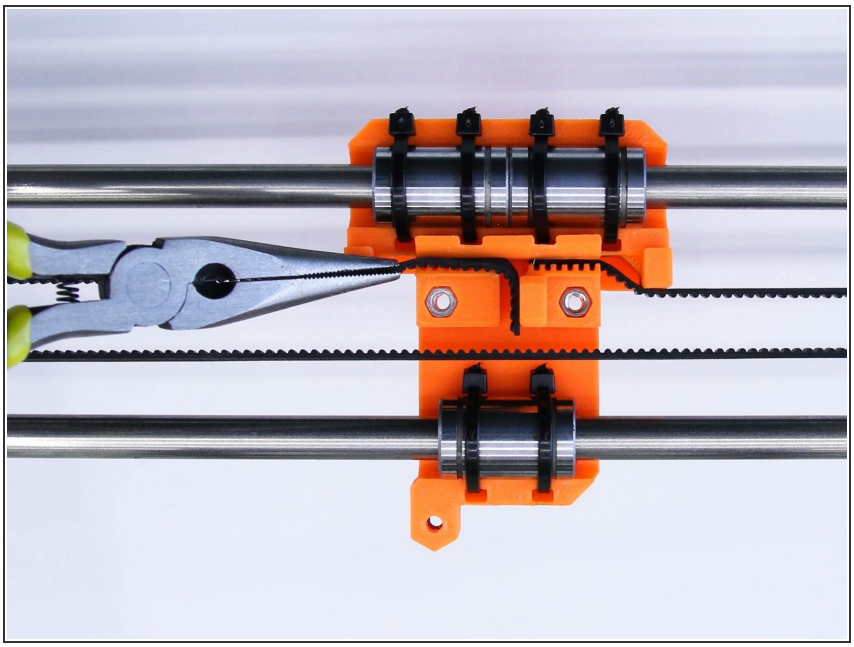
- Guide the X-axis belt through the X-end-motor, around GT2-16 pulley and back

Step 7 — X-axis belt idler guide



- Guide the x-axis belt through X-end-idler, around the 623h bearing with the housing and back

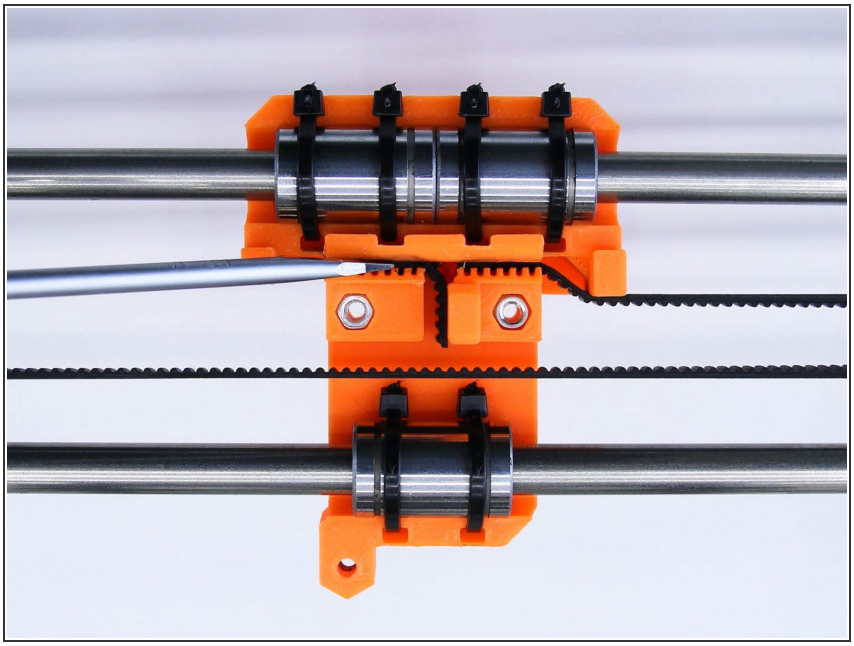
Step 8 — Tightening the X-axis belt



- Use pliers to tighten up the X-axis belt

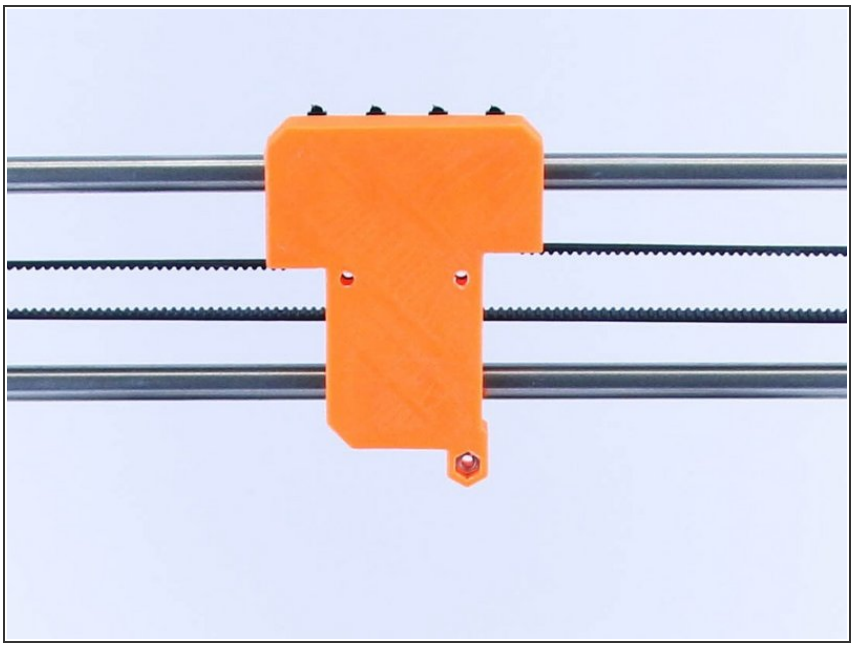
ⓘ It should be tight enough to 'ping'

Step 9 — X-axis belt finishing touches



- Use a screwdriver to push the belt all the way down to the X-carriage

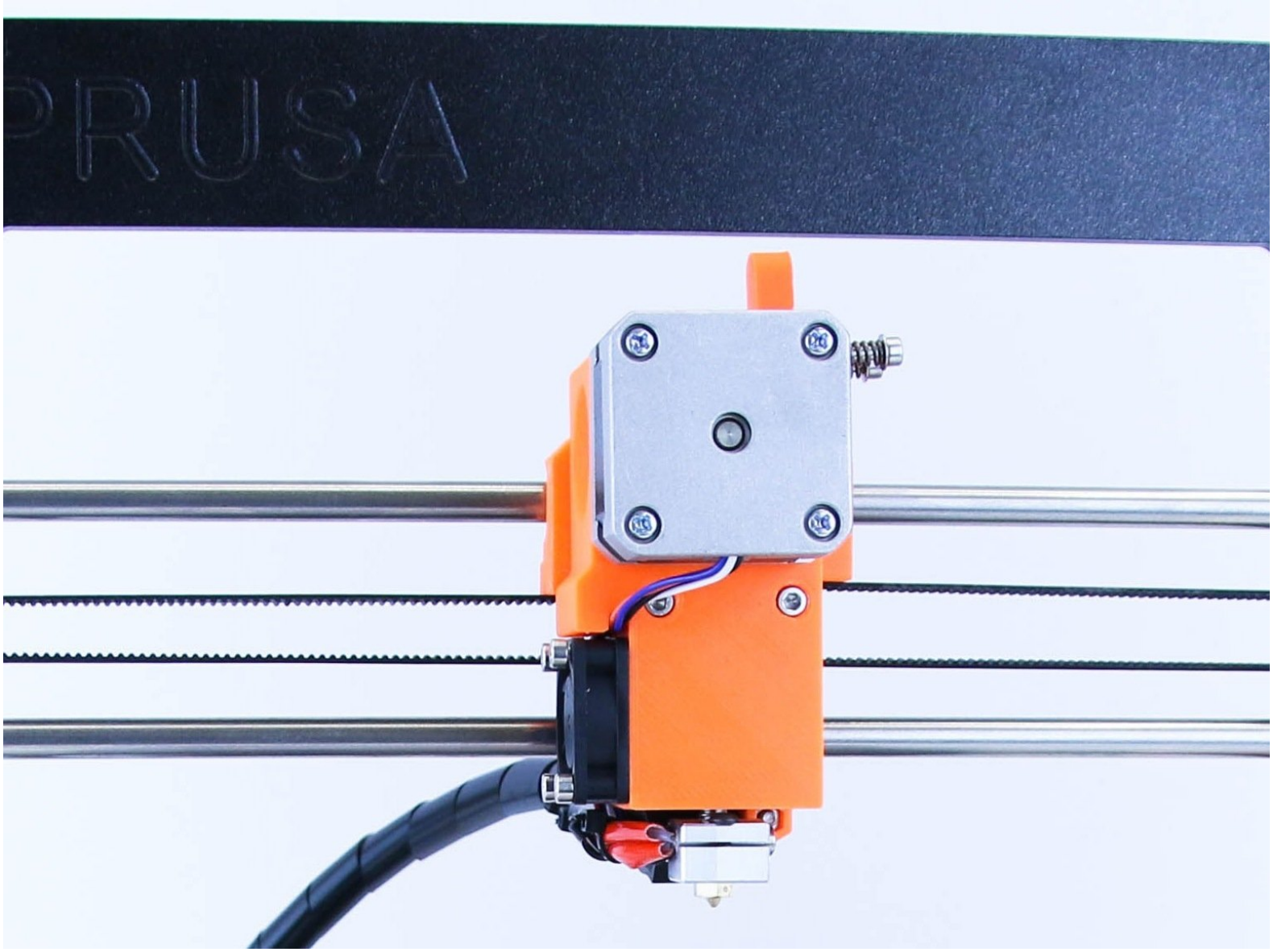
Step 10 — All done!



- Congratulations! You've just changed X-carriage!
- You can now continue by assembling the Extruder by clicking on following link
- 3. Assembling new extruder

3. Assembling new extruder

Written By: Dozuki System

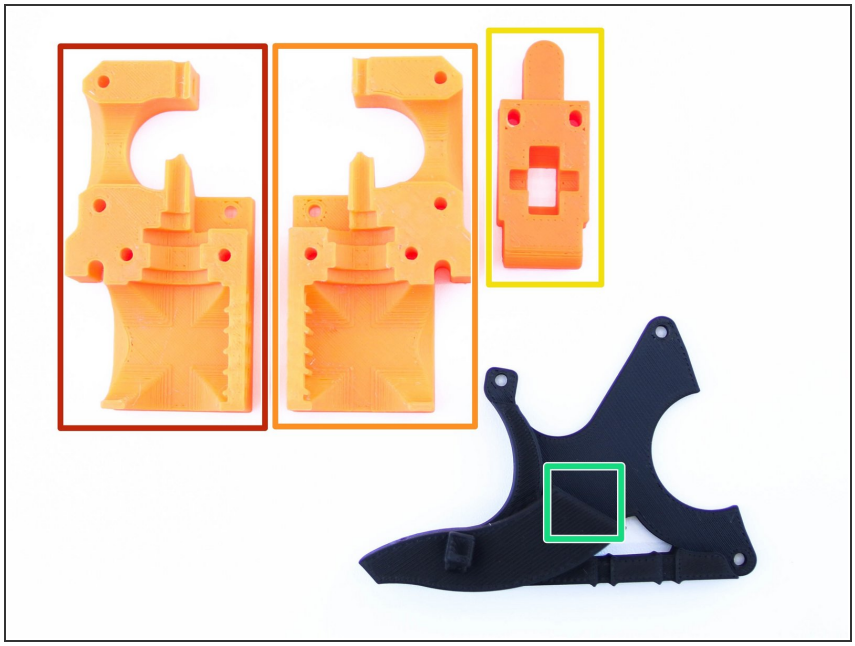


INTRODUCTION

Step 1 — Get the necessary tools

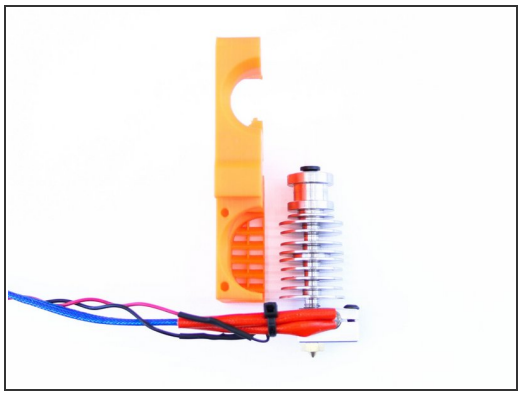
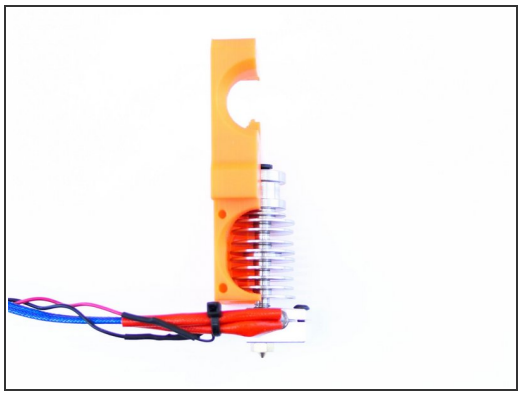
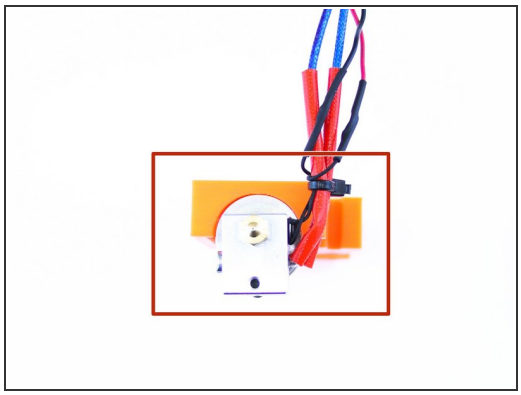
- 2.5, 2 and 1.5 mm hex spanner
- Needle-nose pliers

Step 2 — 3D printed parts



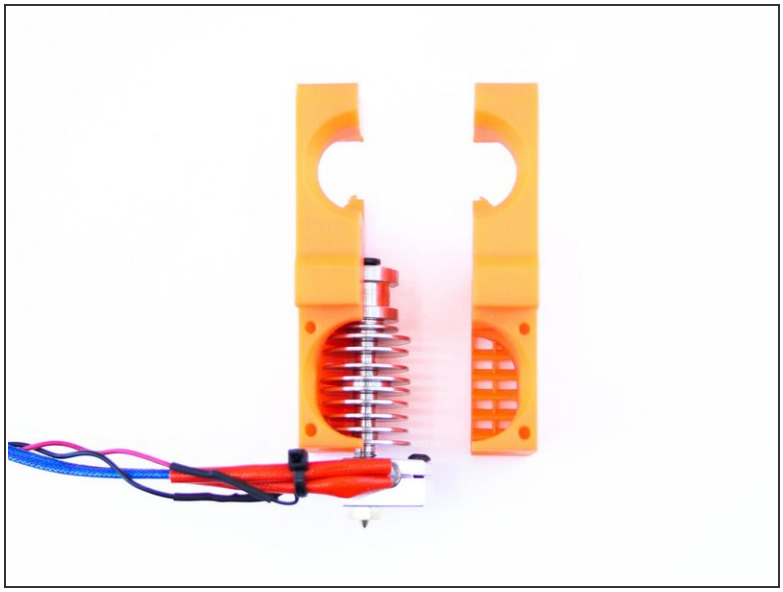
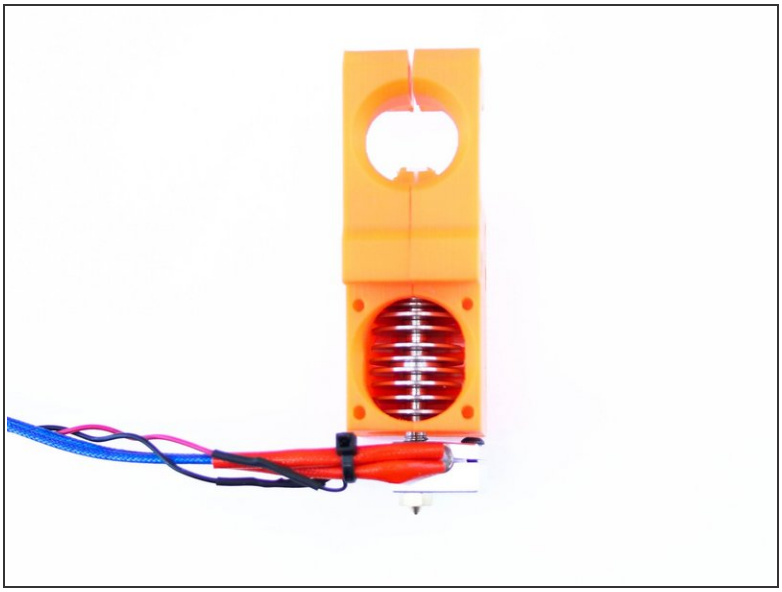
- Extruder body left
- Extruder body right
- Extruder idler
- Fan mount

Step 3 — Preparing extruder left

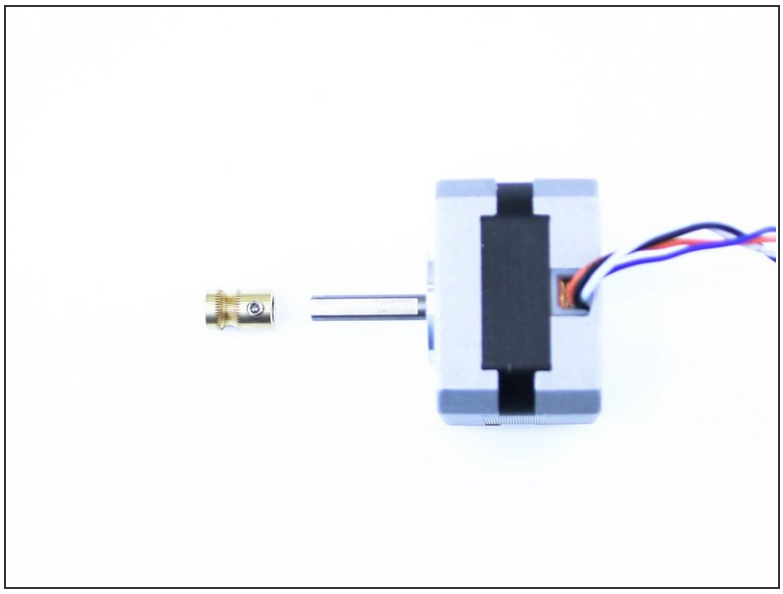
- Slide the nozzle into the extruder left printed part as shown in picture
- Push the nozzle all the way down and make sure that cables are on the side with big hole (as shown in picture)

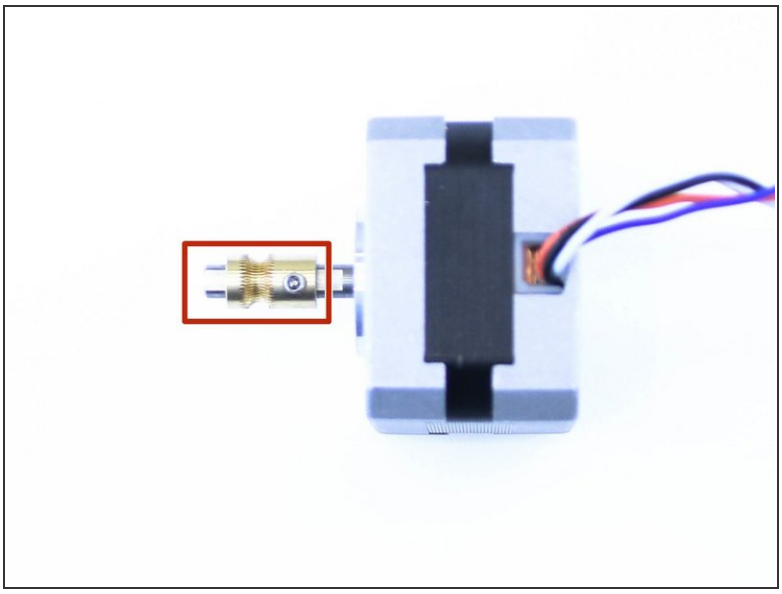
Step 4 — Preparing extruder body

- Slide the extruder body right on the nozzle as shown in picture

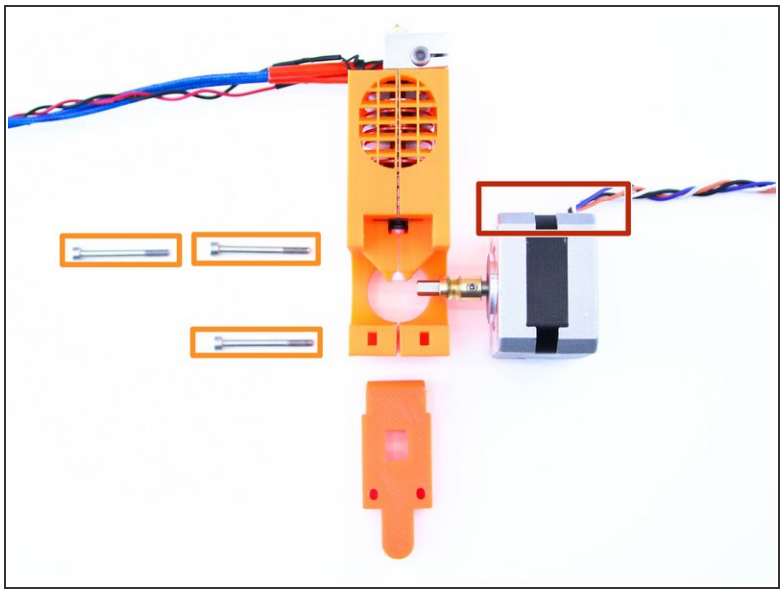
Step 5 — Preparing the extruder motor

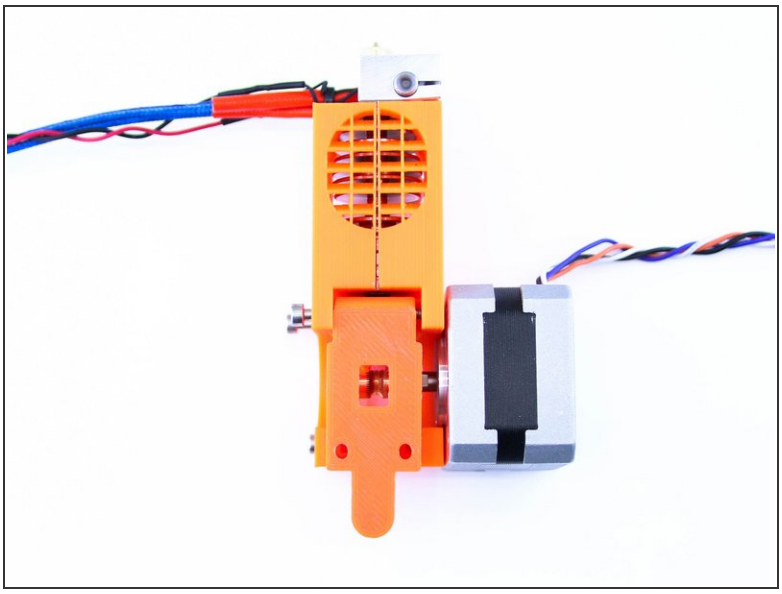




- Press the pulley on the motor
- Note the correct orientation (the screw has to be closer to the motor)
- ⚠ Don't tighten the pulley at the moment, we have still time for that

Step 6 — Mounting the motor and idler

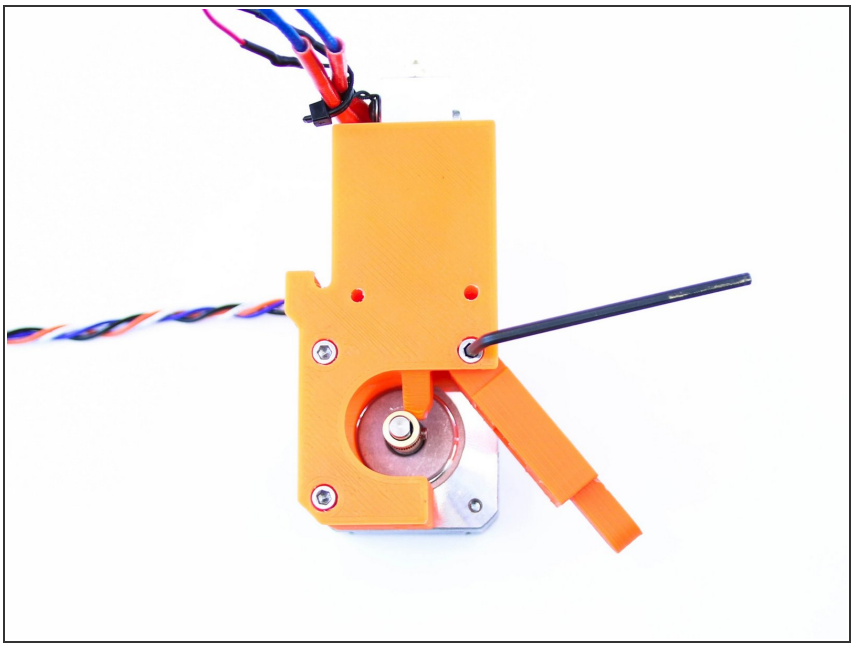




- M3x30 screws
- Mount the motor on the extruder body as shown in picture
- Note the correct orientation of motor cable

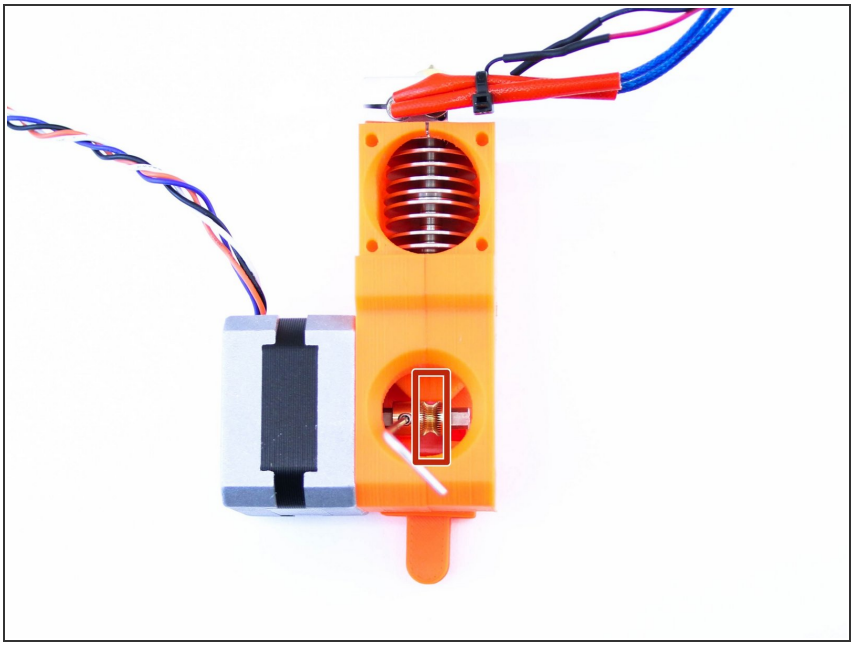
⚠ don't forget to have idler in place (the screw has to go through it)

Step 7 — Tightening the motor



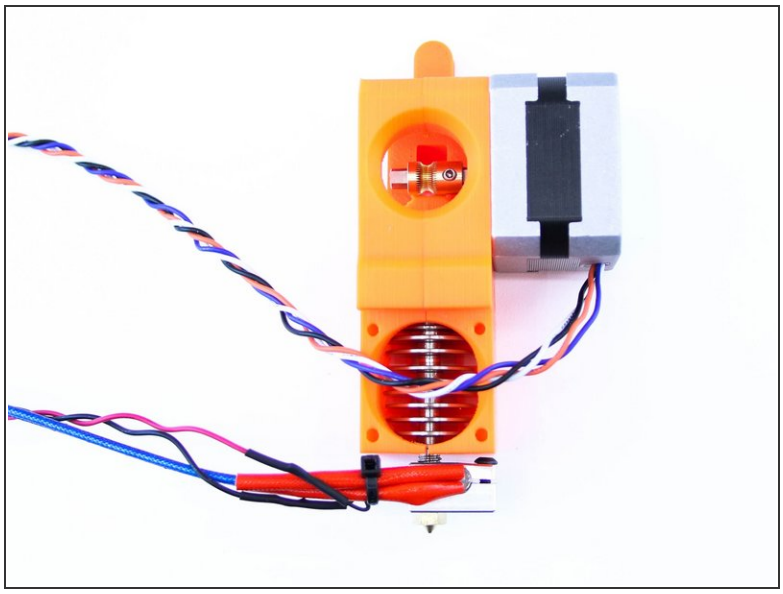
- Tighten the motor screws gently

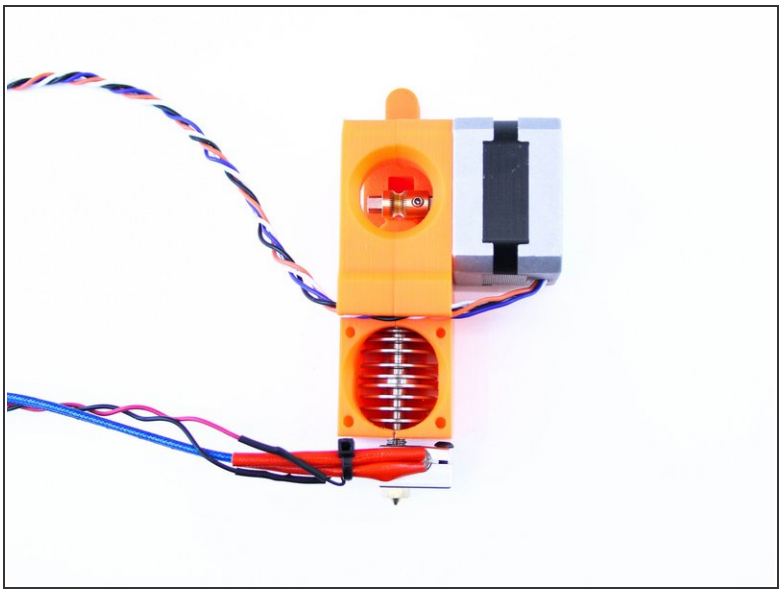
Step 8 — Tightening the pulley



- Using the 1.5mm hex spanner tight the pulley
- Make sure that the part with smaller diameter is perfectly aligned with the nozzle entrance

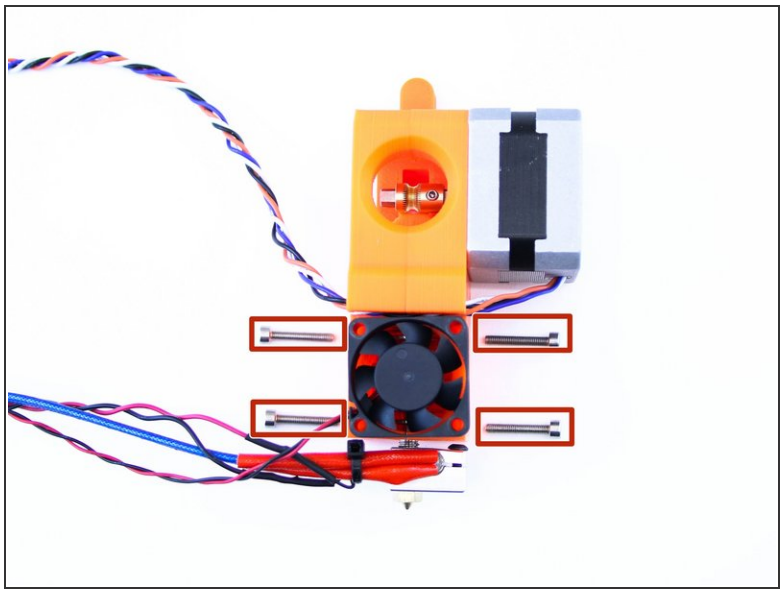
Step 9 — Hiding the cable

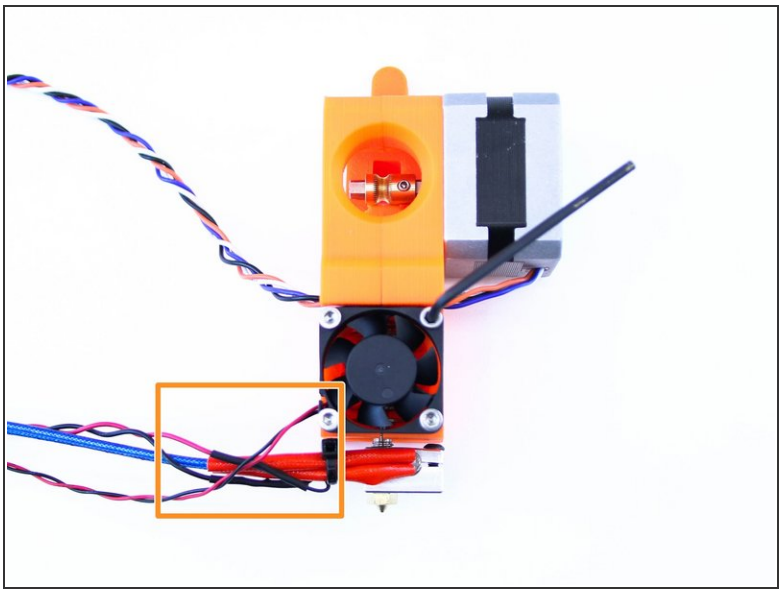




- Slide the extruder cable to the slot in the extruder body as shown in picture

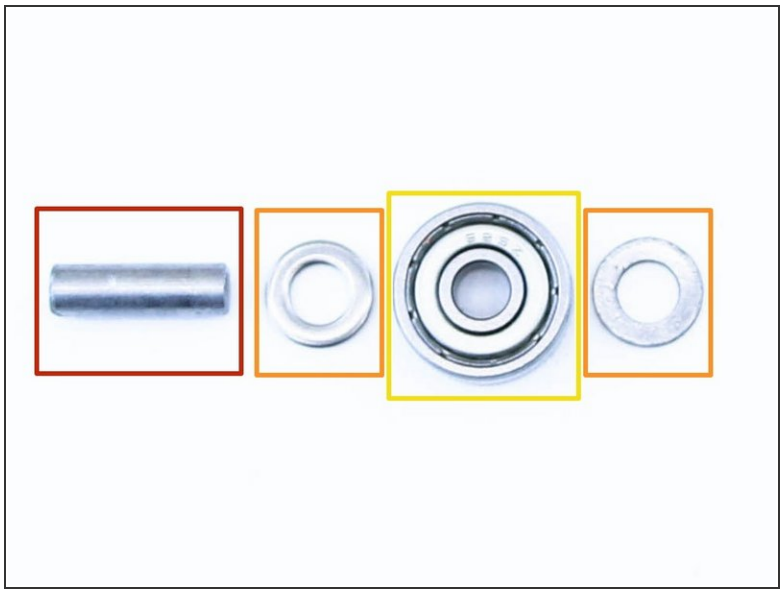
Step 10 — Mounting the fan

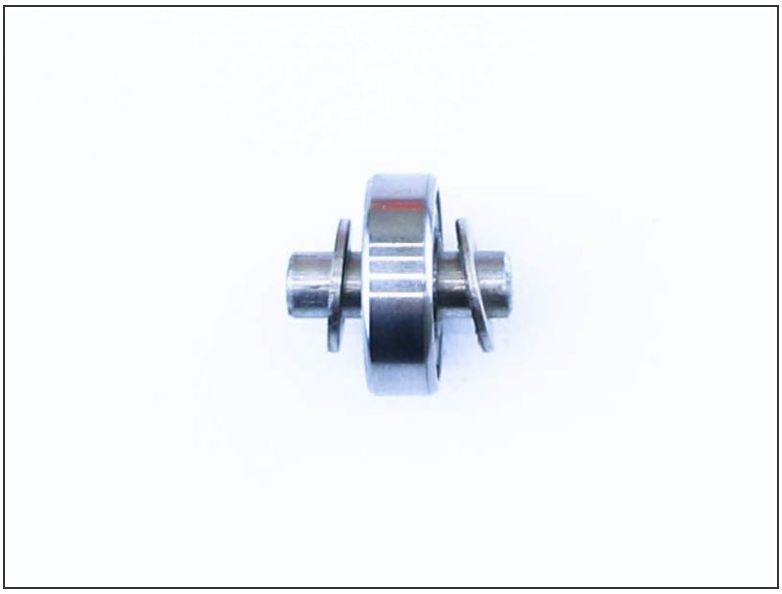




- M3x18 screws
- Using M3x18 screws mount the fan to the extruder body as shown in picture
- Note the correct orientation of the fan (the side with cable has to face the same direction as cables from nozzle)

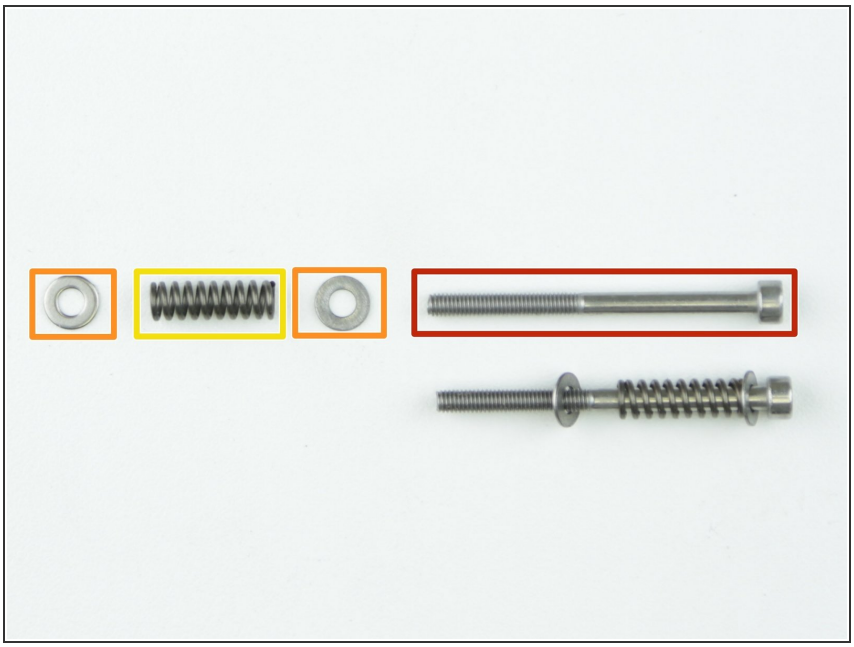
Step 11





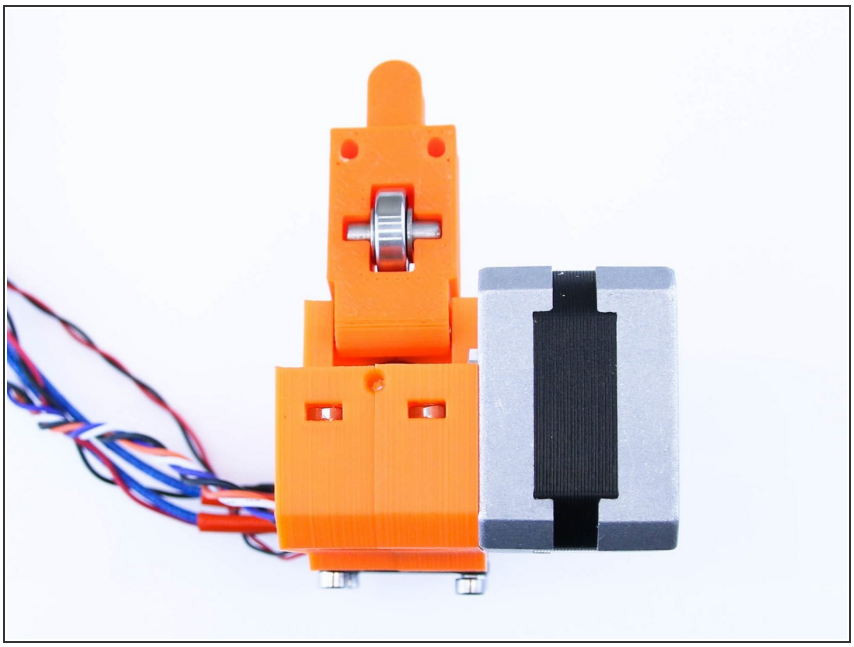
- 5x16sh shaft
- M5w washer
- 625 bearing
- Place the washers and bearing on the shaft as shown in picture

Step 12 — Prepare the Extruder idler screws



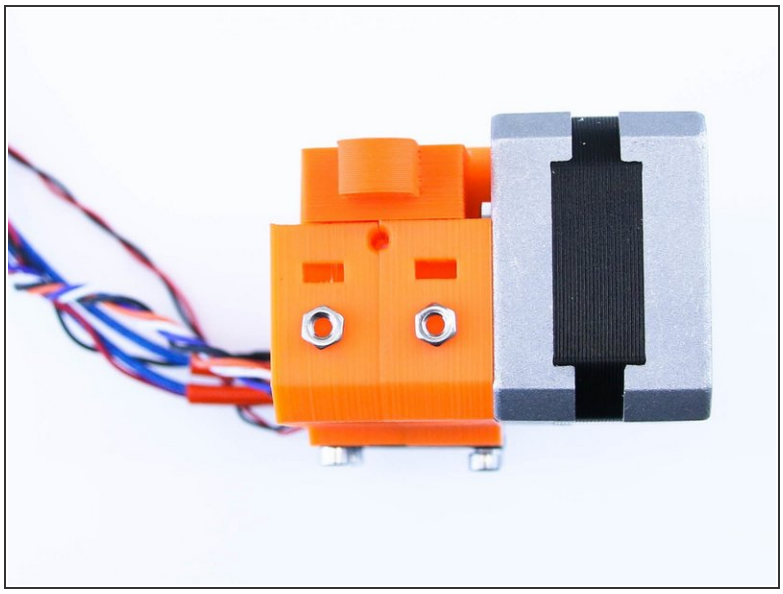
- M3x40 screw
- M3w washer
- Extruder spring
- Assemble the screws as shown in picture

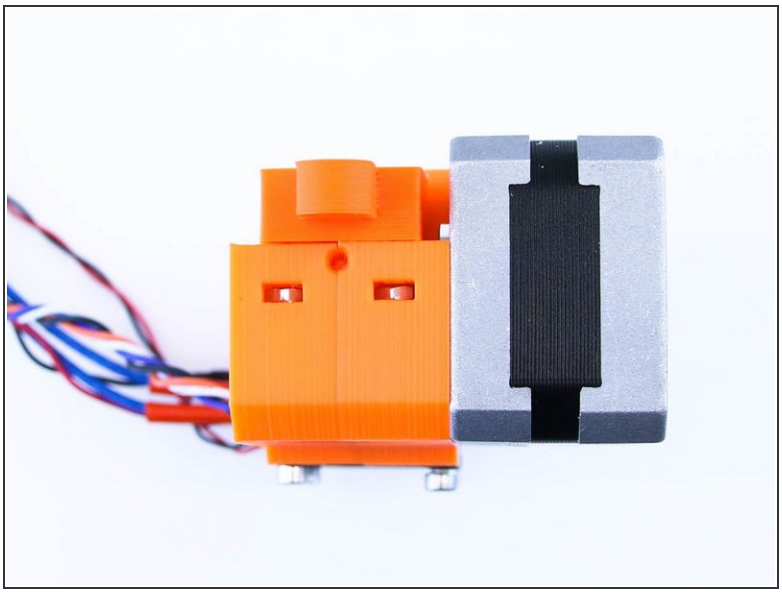
Step 13 — Assembling the idler



- Place the shaft with bearing into the idler

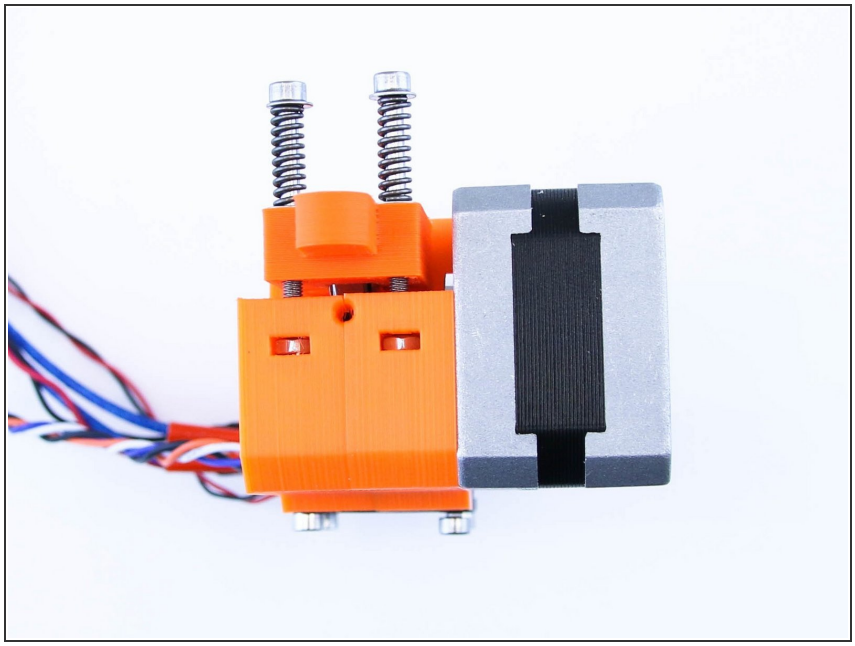
Step 14 — Placing the nuts





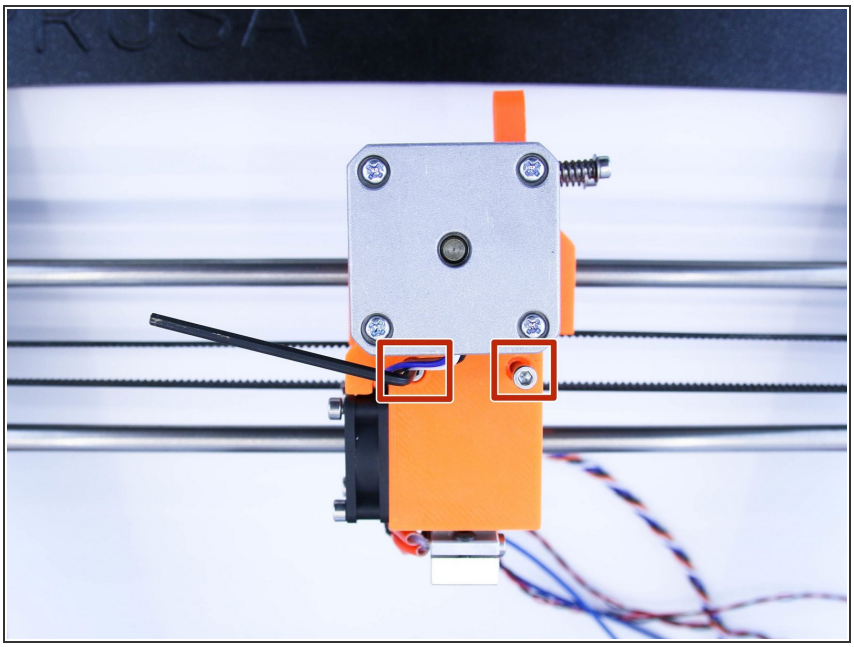
- Place the M3 nuts into the traps on the top of extruder body

Step 15 — Placing the screws



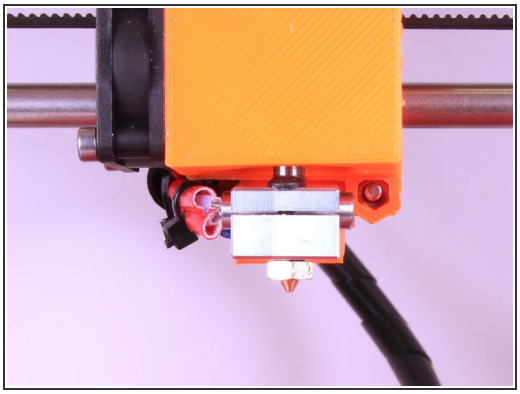
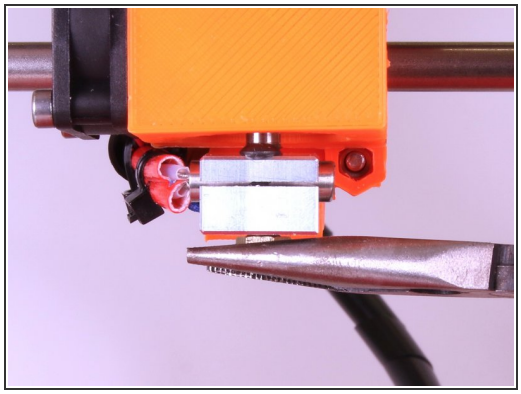
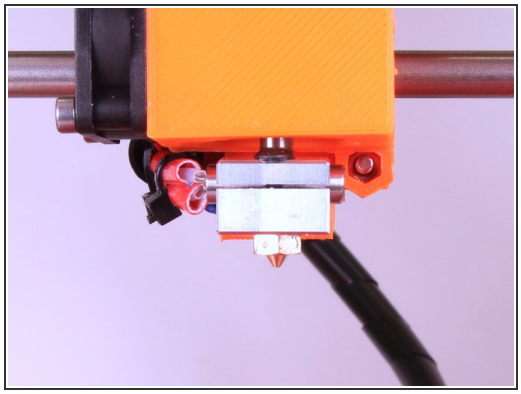
- Screw the extruder screws into the extruder body as shown in picture

Step 16 — Placing the extruder



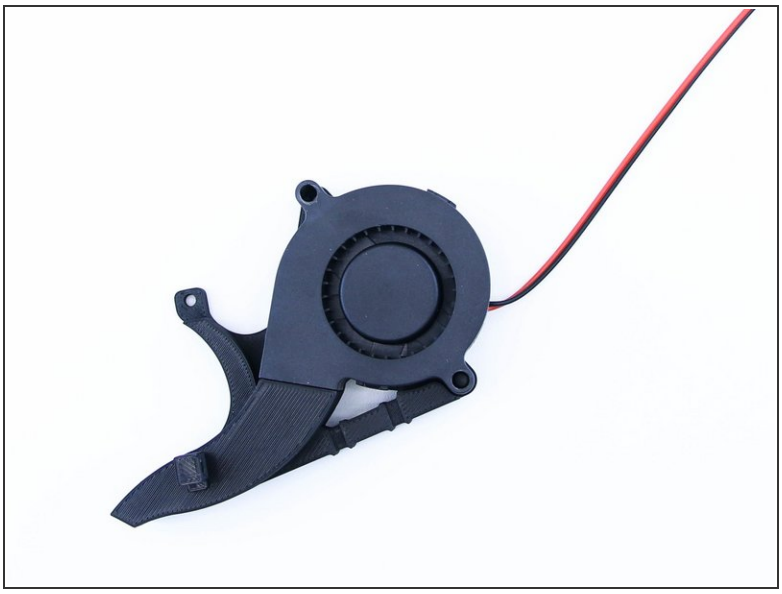
- Using M3x40 screw mount the extruder onto the x-carriage

Step 17 — Nozzle tightening

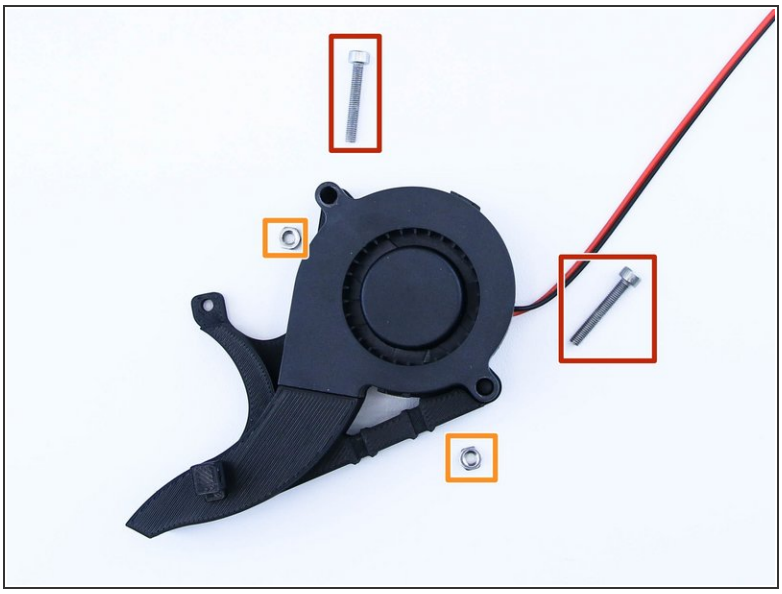
- Using needle nose pliers tie the nozzle tip

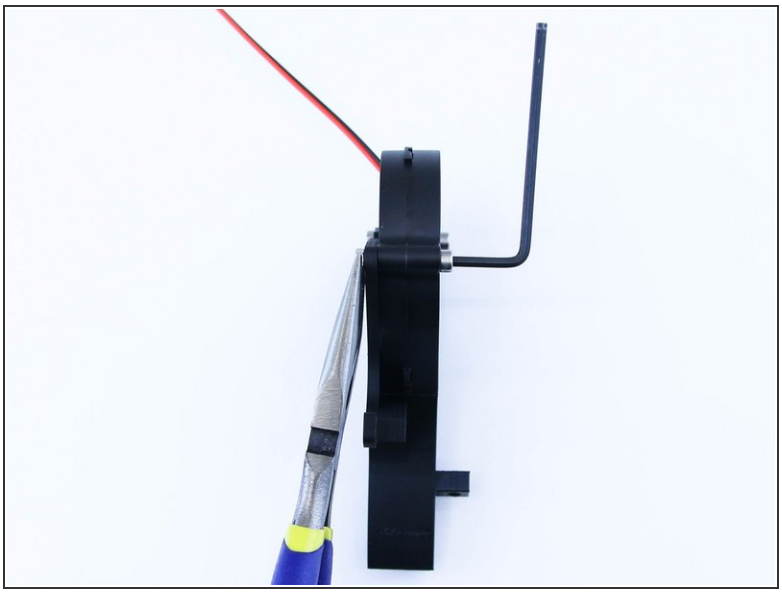
Step 18 — Preparing the print fan



- 5015 print fan
- Place the print fan on the the fan mount

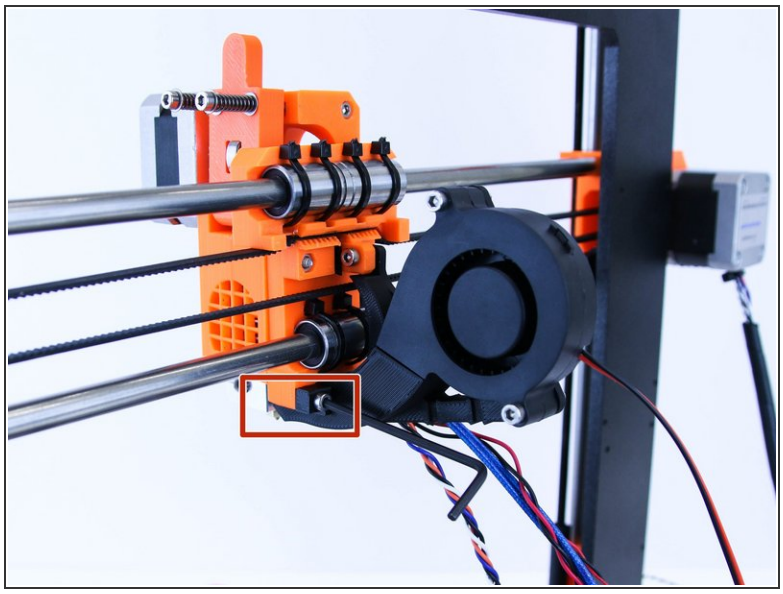
Step 19 — Preparing the print fan (2)

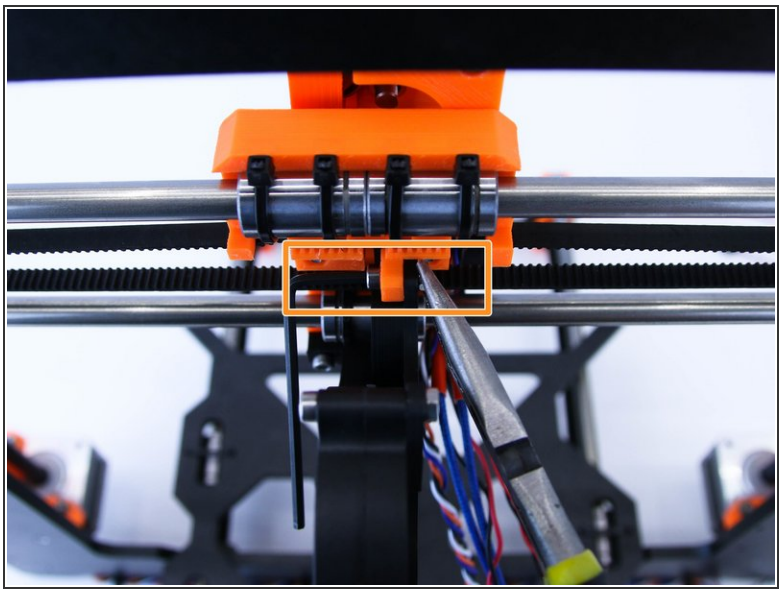




- M3x20 screws
- M3 nuts
- Screw the fan on to the fan mount as shown in picture

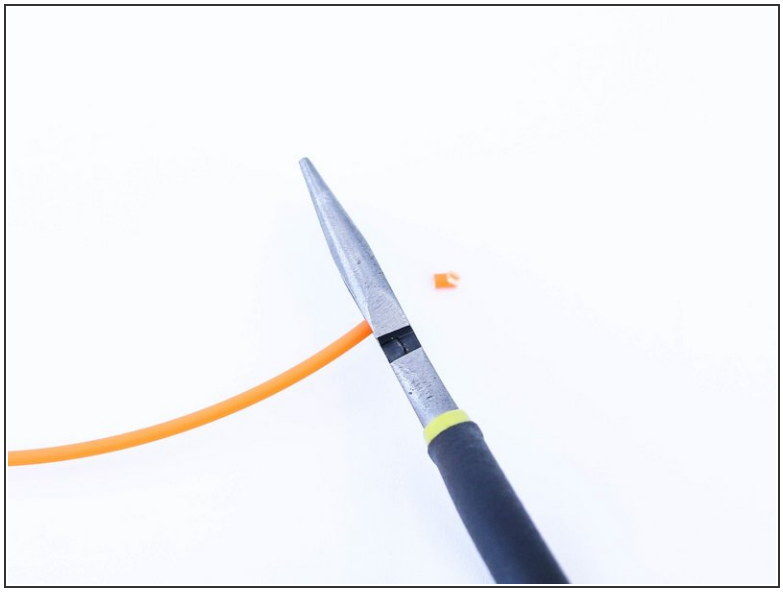
Step 20 — Mounting the fan on the x-carriage

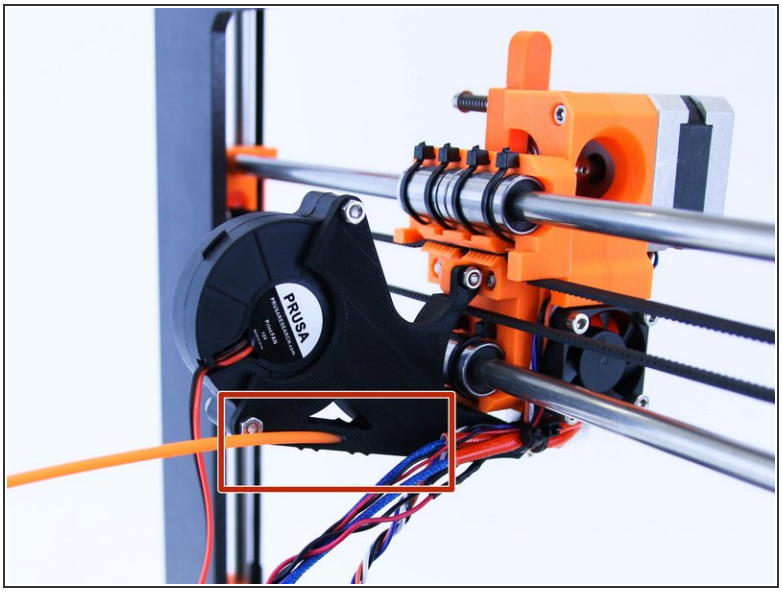




- Using M3x20 screw and M3 nut tight the bottom part of fan mount to the x-carriage
- Using M3x12 screw and M3 NYLOC nut tighten the top part of fan mount to the x-carriage

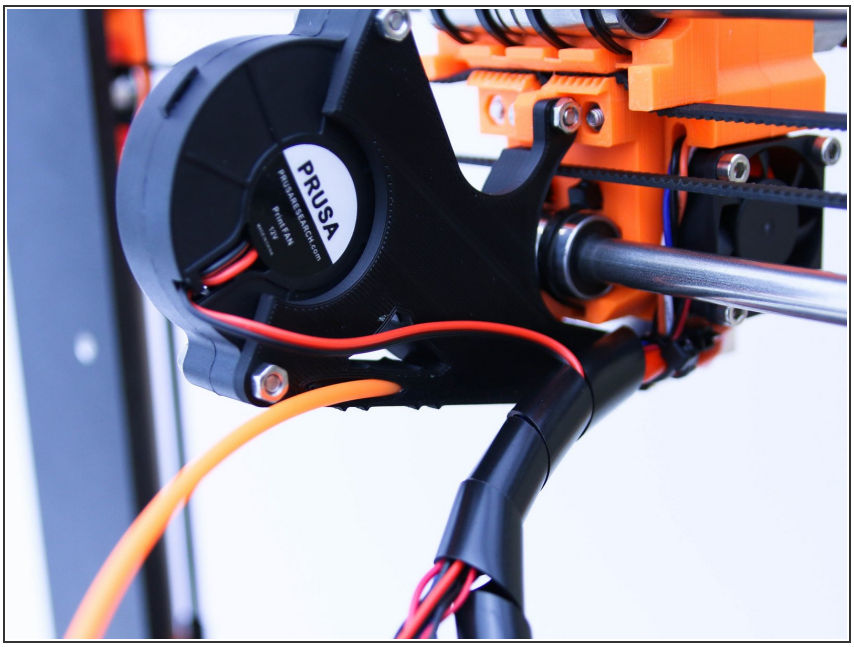
Step 21 — Preparing the filament





- Cut about 70cm long piece of filament
- Push it all the way down the fan mount

Step 22 — Cable management part 1

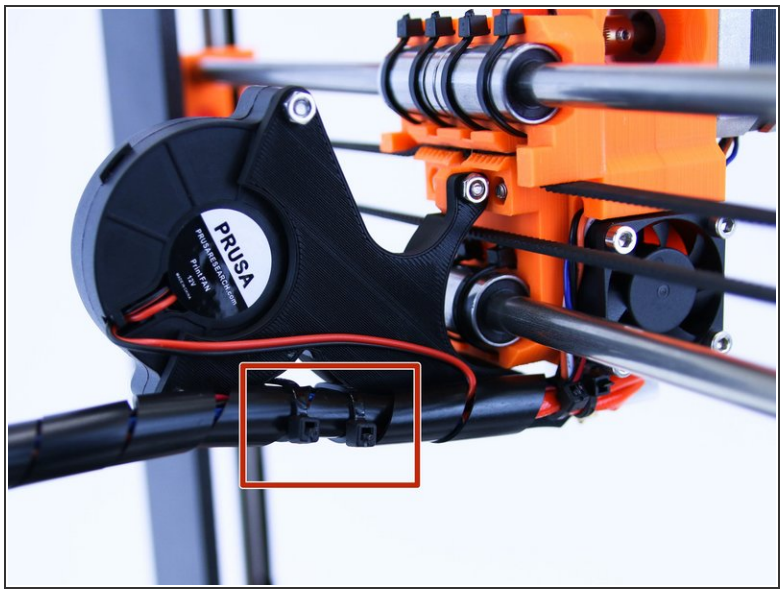


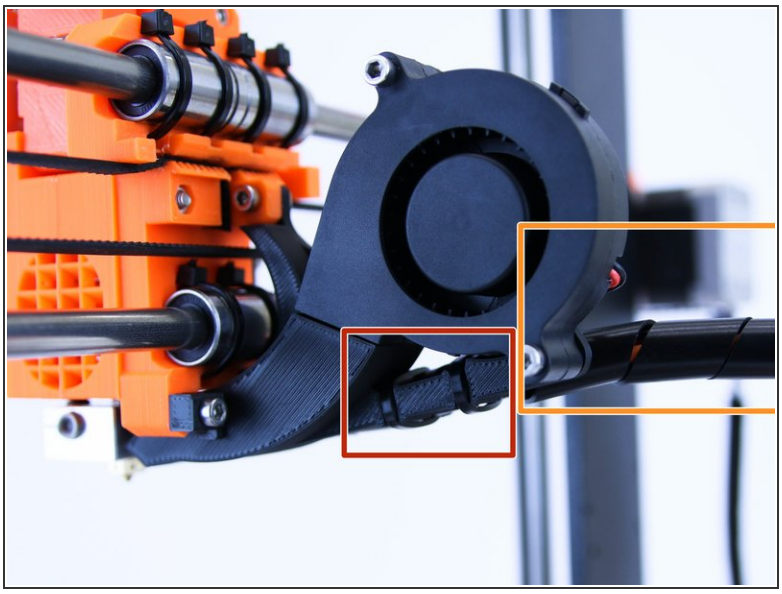
- Wrap the spiral warp around the cables as shown in picture (only from ziptie to the filament entry) as shown in picture

Step 23 — Cable management part 2

- Wrap the spiral wrap around cables and filament

Step 24 — Cable management final part!



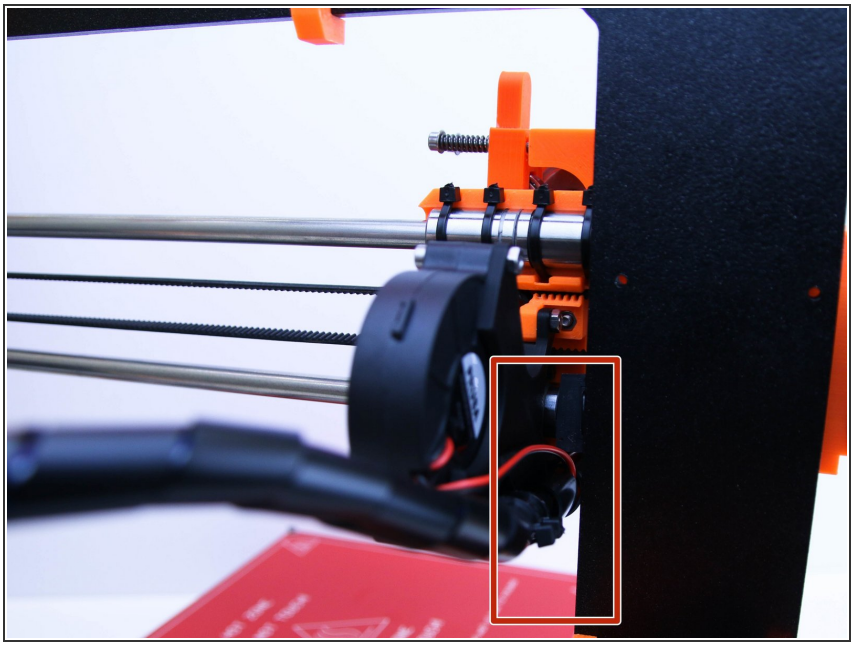


- Use two zipties and tight the wrapped cables to the fan mount

⚠ Make sure that the zipties are in in cutouts

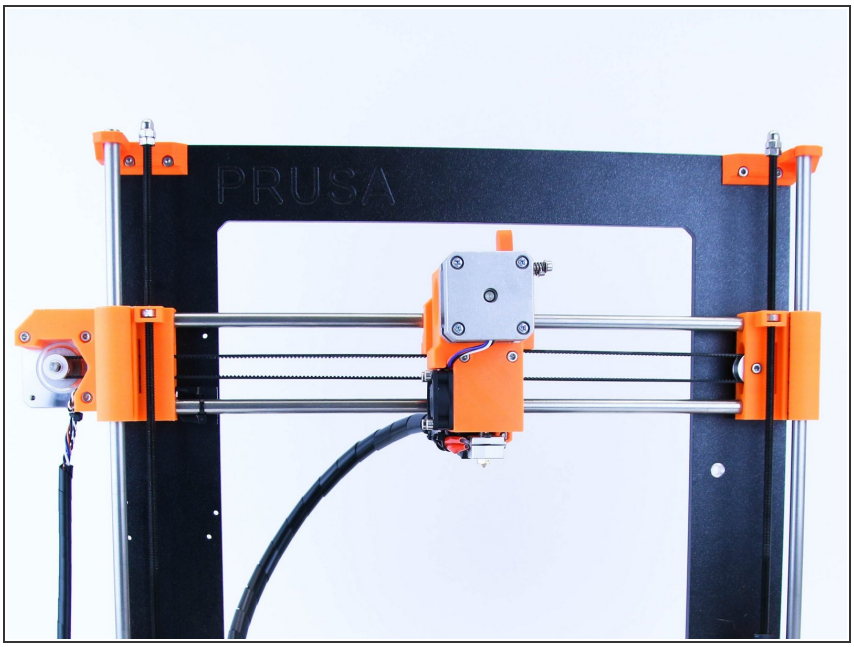
ⓘ Make sure that the cables from extruder are facing up as shown in picture

Step 25 — Adjusting the X endstop



- Adjust the X endstop as shown in picture (if bearing from X-carriage hits the endstop, there has to be a gap of about 4 mm between the cables and frame)

Step 26 — All done!

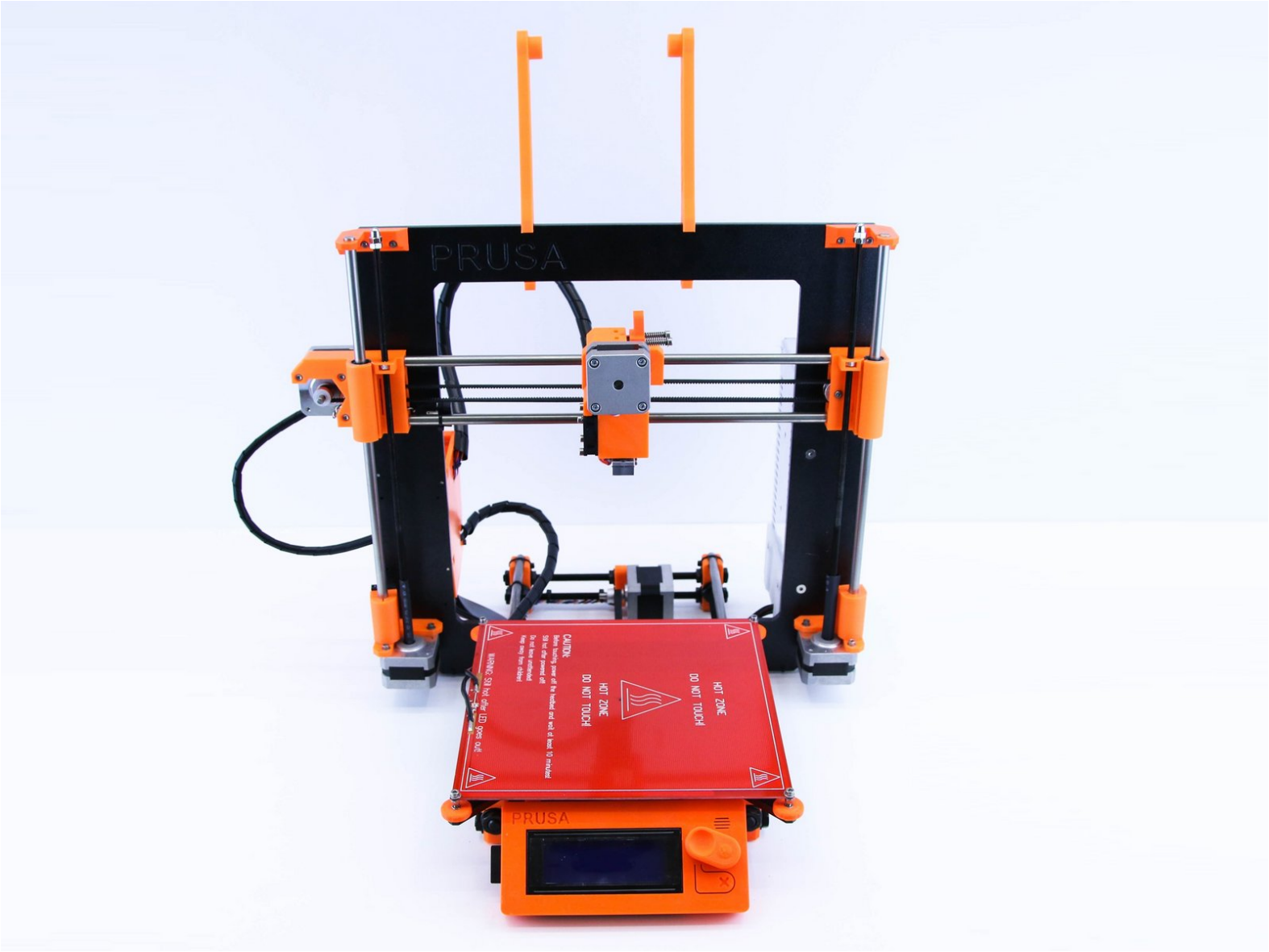


- Congratulations! You've just assembled extruder
- You can continue by assembling the LCD by click on following link
- 6. LCD

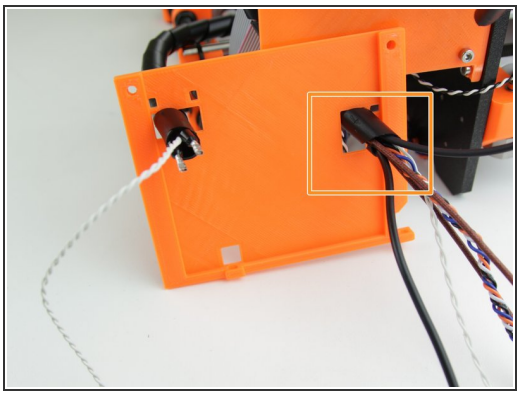
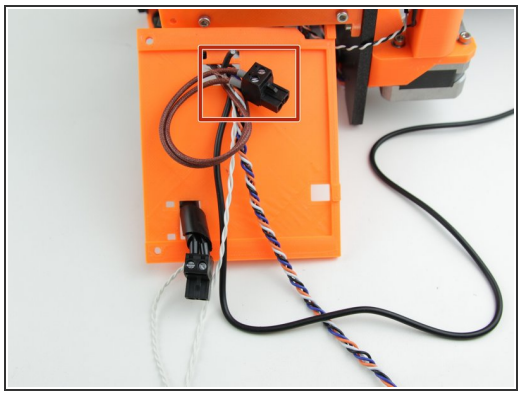
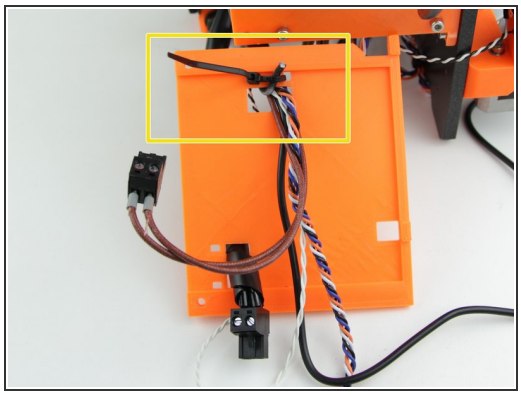
PRUSA RESEARCH by JOSEF PRUSA

4. Connecting electronics

Written By: Josef Prusa



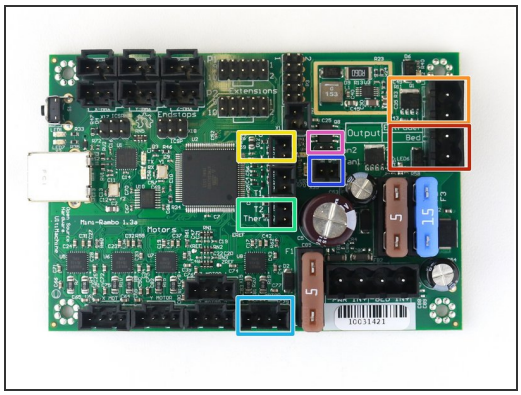
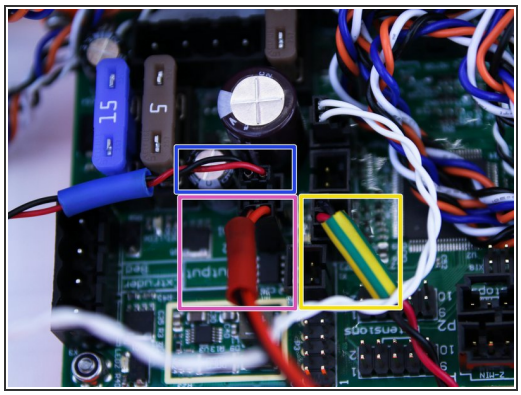
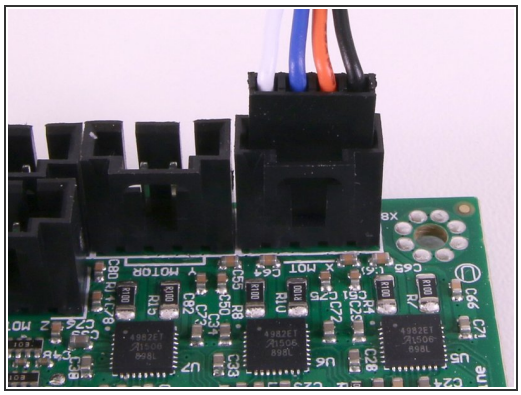
Step 1 — Extruder cables guide

- Guide the extruder cables through top hole in cover
- Screw the connector on extruder heater cables
- Using ziptie anchor the cables to the electronics cover

If you bought fully assembled printer, heatbed cables are guided differently so don't be nervous that you don't have them here.

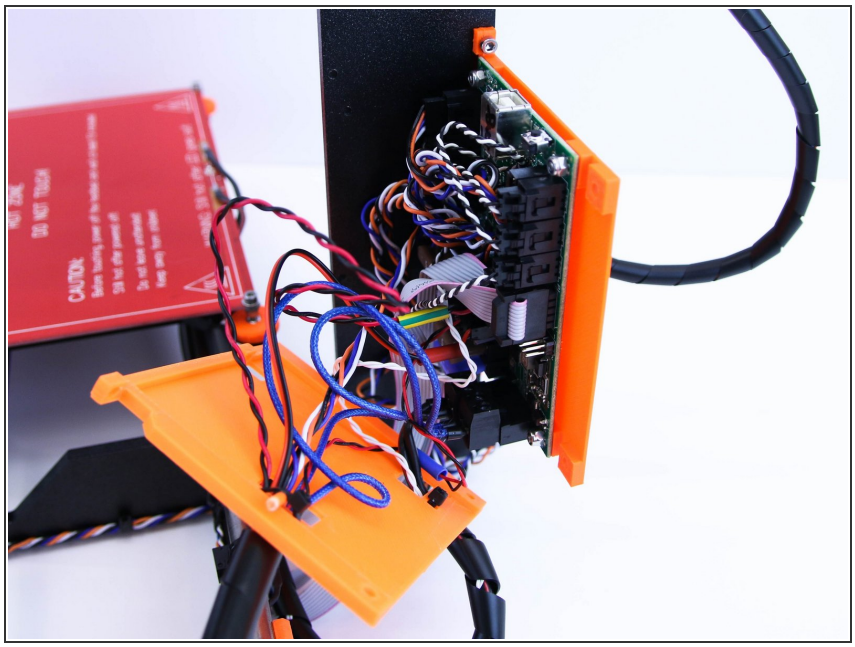
Step 2 — Connecting electronics

- Heatbed heater
- Extruder heater
- Extruder thermistor (cable going from extruder labeled with "TERM") [Orientation does not matter]
- Heatbed thermistor (white cable going from heatbed)
- Extruder motor
- Extruder fan
- Print fan (make sure that the red wire is closer to the thermistor)

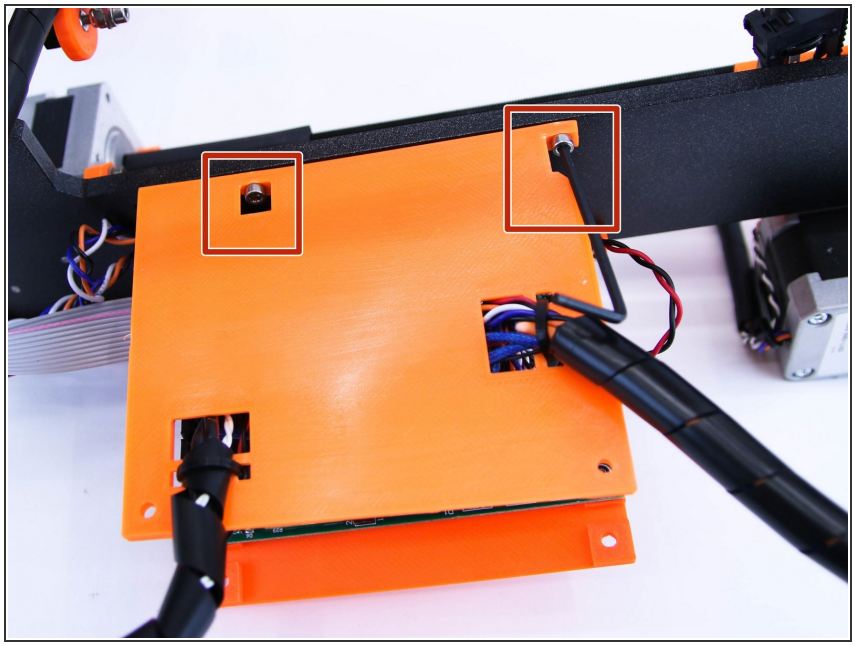
⚠ DOUBLE CHECK the connection! It is so important to ensure the correct connections.

Step 3 — All connected!



- If you've connected everything correctly, it should look like this

Step 4 — Tighten the electronics left cover

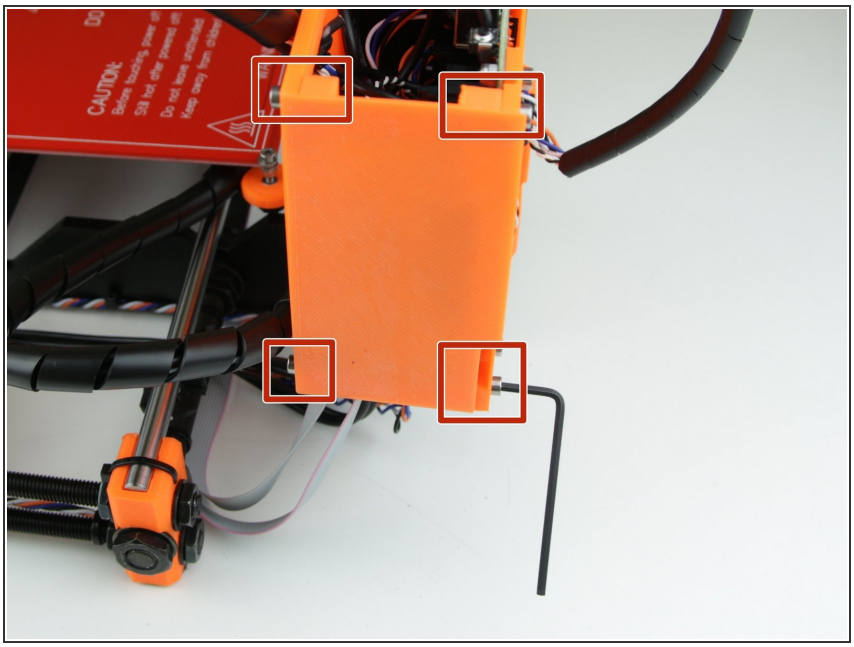


- Using M3x10 screws and the 2.5mm hex spanner, tie the left rambo-cover to the frame

⚠ Do not over-tighten the screws, just half a turn after the screw touches the cover, otherwise you can damage the cover

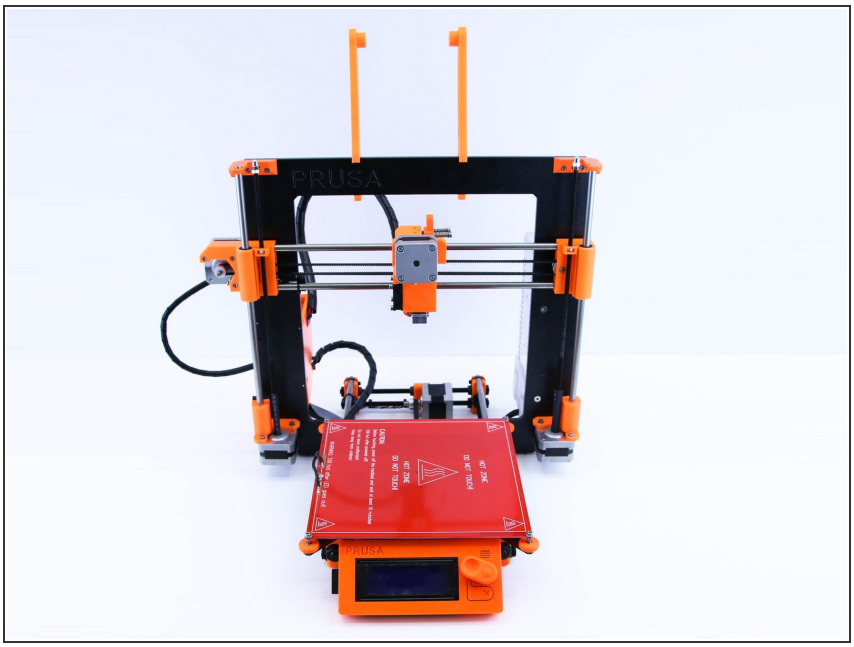
⚠ Covers has to be in line and parallel, as you can see in the picture

Step 5 — Final touch



- Using M3x10 screws, screw the back rambo-cover between sides as shown in picture

Step 6 — Hooray!

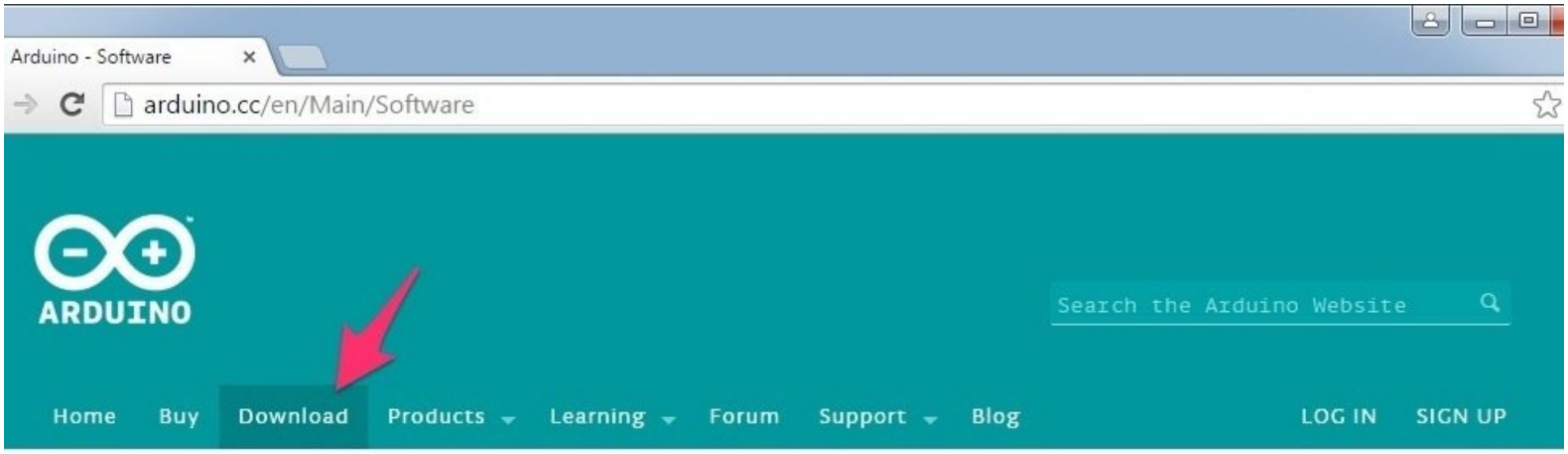


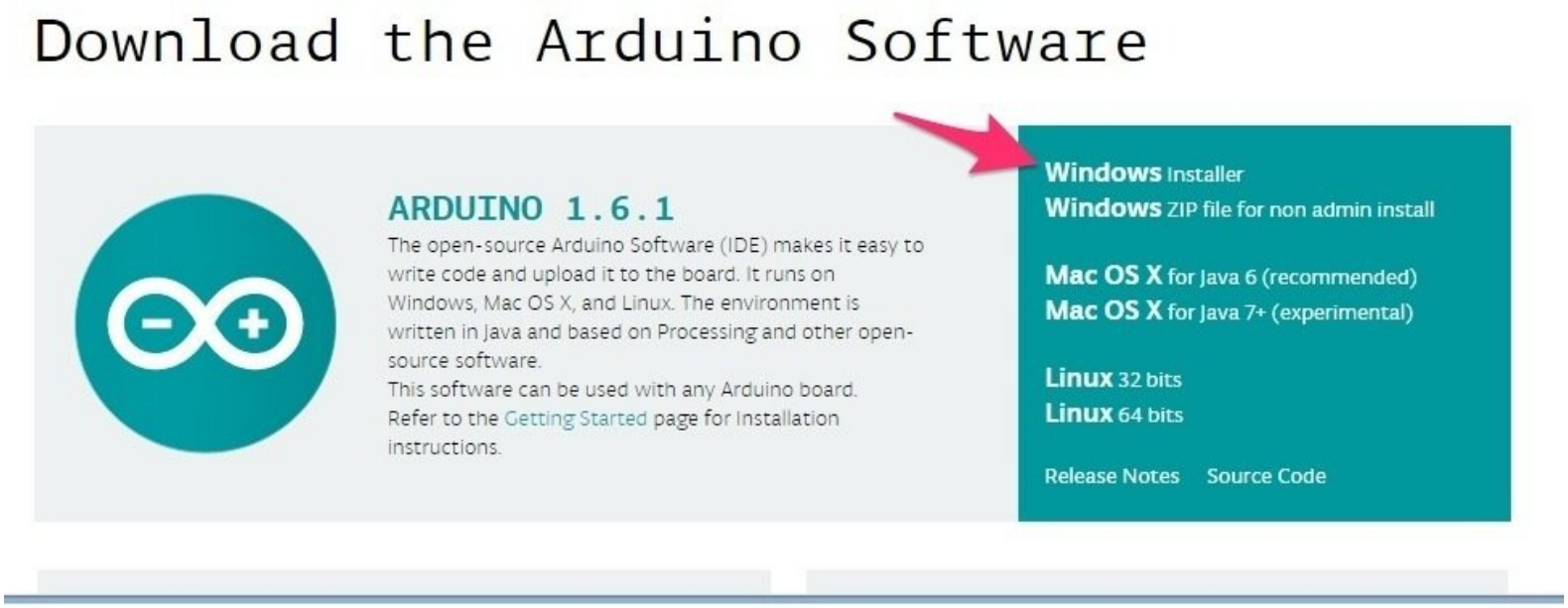
- Congratulations, you'e just upgraded your printer to Prusa i3 Plus 1.75mm!
- But there is one more thing before you can celebrate and print! You have to update firmware in your electronics
- [5. Update RAMBo mini firmware]
- [Calibrate i3 Plus LCD/SD]

PRUSA RESEARCH by JOSEF PRUSA

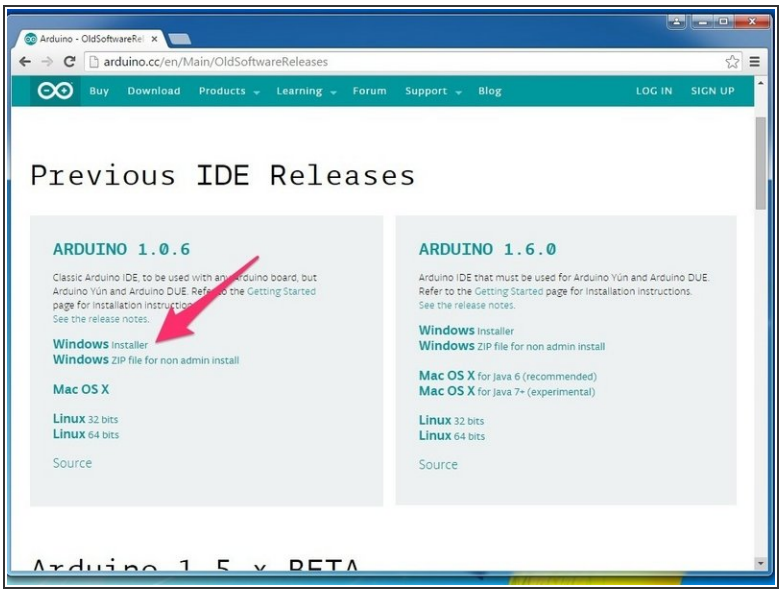
5. Update RAMBo mini firmware

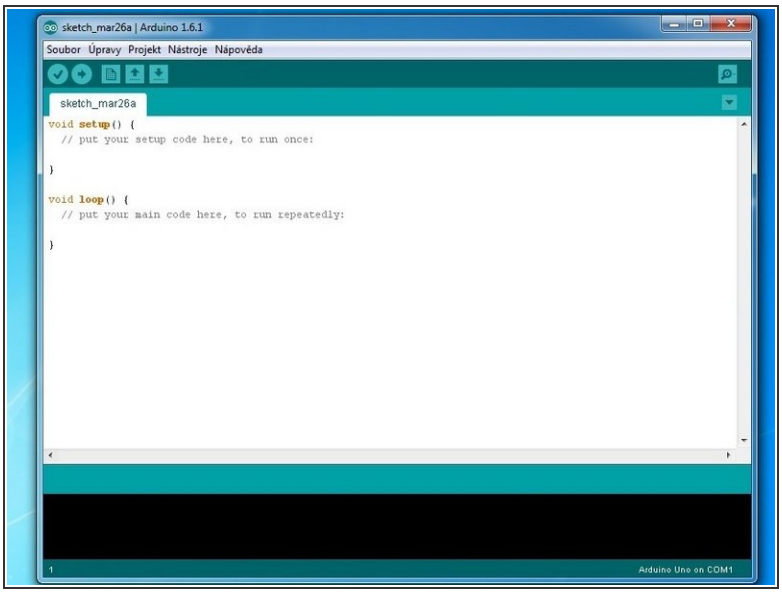
Written By: Dozuki System





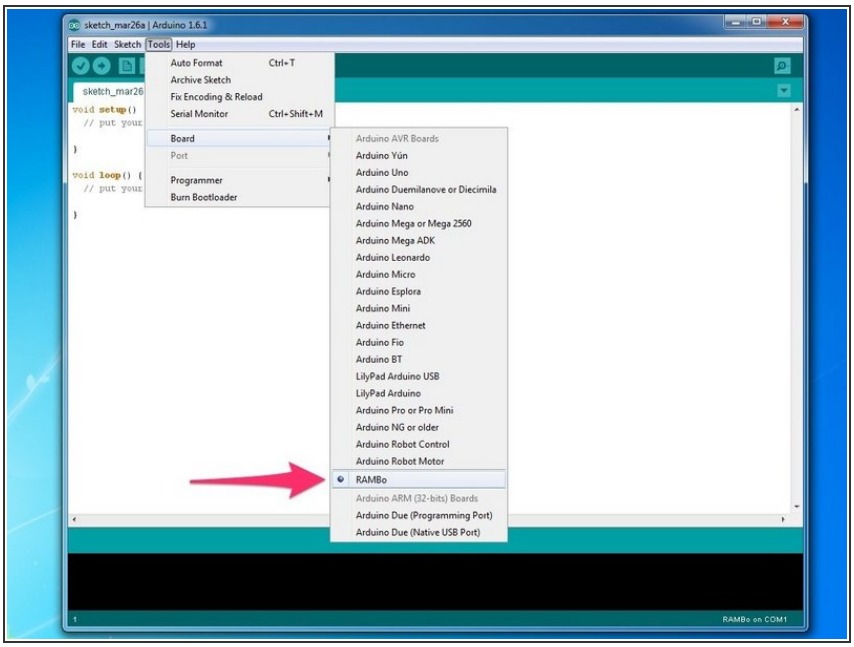
Step 1 — Install Arduino IDE





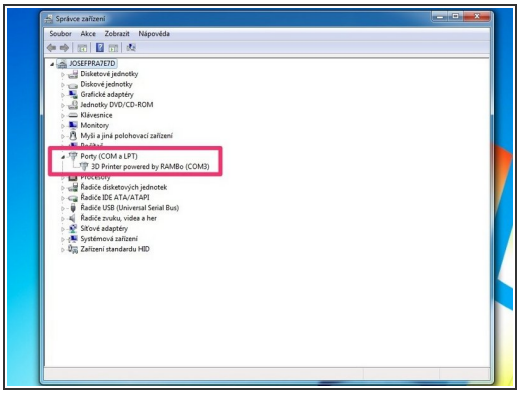
- Go to Arduino.cc
- [Download and run Windows Installer.]
- Test if Arduino runs properly.

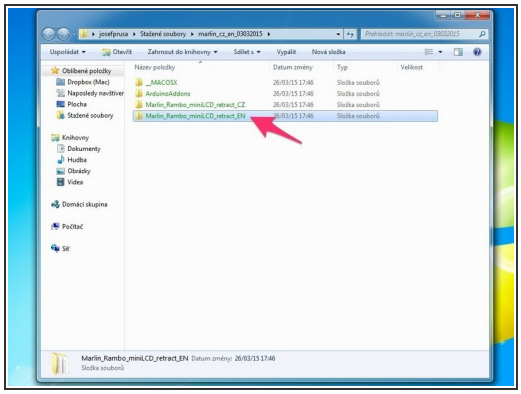
Step 2 — Download firmware

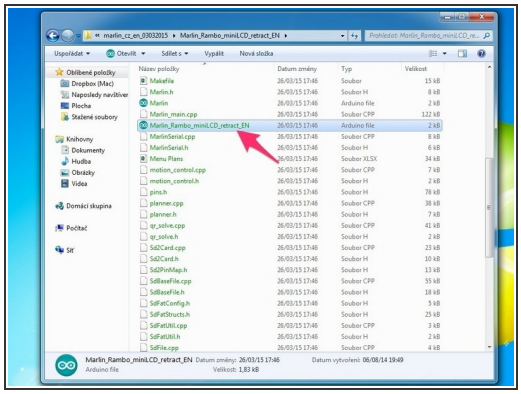


- Go to http://www.prusa3d.cz/wp-content/uploads... and download FW
- Download RAMBo addon for Arduino IDE http://www.prusa3d.cz/wp-content/uploads...
- Unpack the zips.
- Copy the **"marlinAddon"** folder into **C:\Program Files (x86)\Arduino\hardware**
- Restart Arduino IDE and check if "RAMBo" is available under Tools -> Board

Step 3 — Setting up



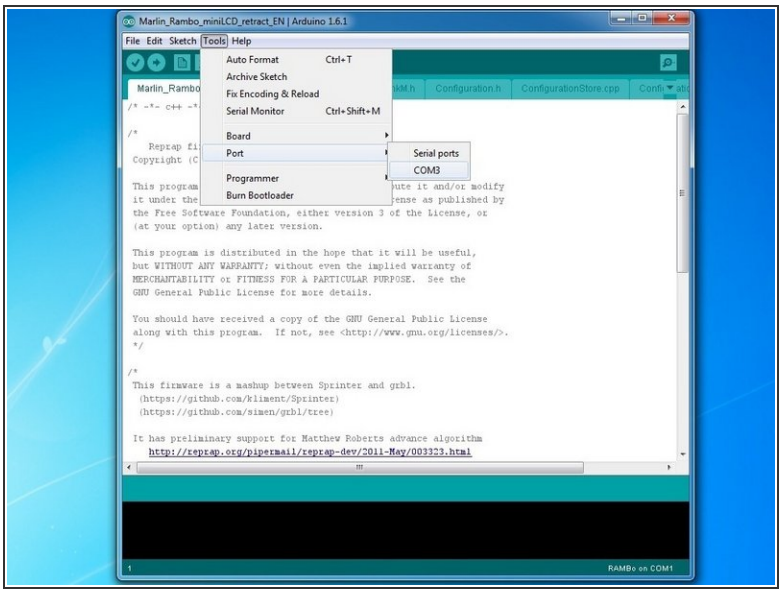


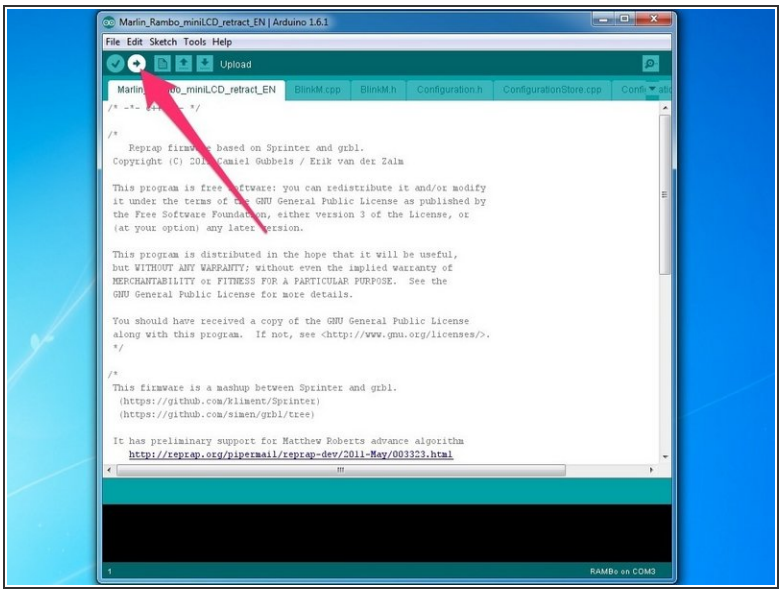


- Connect the printer to the computer and note the COM port. You can use HW manager to find out.
- Open the folder **Marlin-RAMBO-MINI13-e3d-newmenu-EN**.
- Open file **Marlin-RAMBO-MINI13-e3d-newmenu-EN** (It has arduino icon)

This document was generated on 2020-12-20 09:57:27 PM (MST).

Step 4 — Flashing the FW





- Under **Tools -> Port** choose your printer COM port.
- Recheck if **RAMBo** is selected under **Tools > Board**.
- Click **Upload**.
- Wait for **Done uploading** and you are done.